

Introduction to the Québec maple syrup production



Maple syrup is a natural production with no colouring agents, or additives. It is produced from the sap of the sugar maple (*Acer saccharum*). In springtime, when the temperatures warm up, there is water in the trunk and roots. The heat promotes the expansion of this water and creates pressure inside the tree. The sugar maple then transforms starch, built up during the trees growth, into sugar. The switch between cold nights, where temperatures fall below zero, and days where temperatures rise above zero, favours the flow of sap, which is transported through tubing to the Sugarhouse.

Production of maple syrup by million pounds & million dollars

ANNÉE	QUÉBEC		AUTRES PROVINCES		CANADA		ÉTATS-UNIS		TOTAL	
	Livres	\$	Livres	\$	Livres	\$	Livres	\$	Livres	\$
1997	58,0	115,9	4,7	15,2	62,7	121,1	14,4	35,2	77,1	156,3
1998	56,9	122,7	4,3	14,8	61,3	137,5	12,8	32,2	74,1	169,7
1999	68,7	131,4	5,2	16,0	73,9	147,4	13,1	32,8	87,0	180,2
2000 E	91,0	158,8	6,0	22,3	97,0	181,0	13,6	33,9	110,7	215,0
2001 E	62,4	123,2	4,5	15,2	66,8	138,4	11,6	28,2	78,4	166,6

E : Estimation

Sources : - New England Agricultural Statistics Service, USDA.

- Statistique Canada.

- GREPA, Consultants en agroalimentaire.

- Institut de la Statistique du Québec.

- MAPAQ, Direction de la recherche économique.

Maple water is composed of more than 97% water, sucrose and glucose. We also find amino acids, proteins, organic acids and vitamins in variable quantities. It takes 40 litres of maple water to obtain one litre of maple syrup.

Maple syrup is defined by its sugar: 66 degrees Brix which represents the sugar density. (The Brix degree is the weight in grams of dry substance contained in 100 grams of a solution in distilled water). The maple syrup and its by-products are ingredients of choice, rewarded by Quebec, Canadian and international customers.

CLASSIFICATION OF MAPLE SYRUP

There exist two types of classification for maple syrup: the classification of the Federal Government (for retail) and that of the Provincial Government (farm barrel classification).

1.FEDERAL CLASSIFICATION FOR RETAIL:

The Canadian Food Inspection Agency (CFIA) controls the wholesomeness and quality of Canadian maple products and is responsible for the "*Canadian Food Inspection Agency*" classification of maple syrup. This classification has five categories of syrup.

The categories are:

- * Canada No. 1 extra clear /Very lite maple flavour)
- * Canada No. 1 clear / lite maple flavour)
- * Canada No 1 medium / traditionnel maple flavour)
- * Canada No. 2 amber / full maple flavour)
- * Canada No. 3 dark / strongly maple flavour (for Cooking only)

2.CLASSIFICATION OF THE BARRELS AT THE FARM

The Quebec Government promulgated a regulation regarding maple products, which establishes 5 classes of colour for maple syrup according to its clarity, its density and the characteristic taste of maple, assuring the product respects all the standards of quality.

- Extra Clear «AA» (+75% light transmission)
- Clear «A».....(60,5% to 74,9% light transmission)
- Medium «B».... (44% to 60,4% light transmission)
- Amber «C»(27% to 43,9% light transmission)
- Dark «D”.....(-27% light transmission)

This classification is obtained by determining the level of transmission of light of the maple syrup. The degree of transmission of light of the maple syrup is obtained by means of the otic method. This technique of analysis requires a spectrophotometer.

TRANSMISSION DE LUMIÈRE	1997 %	1998 %	1999 %	2000 %	2001 %	MOYENNE
Extra clair						
75 % et plus	19,9	19,0	18,6	11,1	11,2	16,8
Clair						
60,5 % - 74,9 %	29,3	23,0	29,7	24,6	26,3	26,6
Médium						
44 % - 60,4 %	24,3	23,0	24,3	28,1	30,3	26,0
Ambré						
27 % - 43,9 %	13,6	18,0	14,8	22,4	19,9	17,8
Foncé						
Moins de 27 %	12,9	17,0	12,6	13,8	11,5	13,6

Sources : -Institut de la statistique du Québec, Statistiques agroalimentaires.
 -Regroupement pour la commercialisation des produits de l'érable du Québec.
 -MAPAQ, Direction de la recherche économique.

A continuing light spectrum (white light decomposed by a prism) falls on the mobile screen pierced with a window, which leaves only the chosen colour through. The wave of this colour arrives on the body to be

studied, goes through it and ends its path on a detector, which determines the absorption value of this light by the body.

CERTIFICATION CERTIFICATES AVAILABLE.

NATURAL MAPLE SYRUP.

Recognized around the world as a high quality natural product, **Quebec's maple syrup** is a produce where safety, wholesomeness and authenticity go through a strict quality approval. The inspection of Quebec's large containers has been given by "la Fédération des producteurs acéricoles du Québec" (Quebec Maple Farmers Federation) to Cintech Agroalimentaire under the agreement concerning the inspection management of large farm barrel maple products. This quality

inspection (classification) is one according to the *Act respecting the marketing of agricultural food and fish products of Québec.*



ORGANIC MAPLE SYRUP:

Organic maple syrup is produced in virtue of the Law on the Reserved Appellations (Loi sur les appellations réservées) (Chap.A20.02). This legislation aims at outlining the control of the labels of origin, which are attributed to agricultural and food products for their attestation (by way of specifications) of their method of production, region of production and their specificity.

The organic norms aim towards the development of the sugarhouse, respected by the vegetable diversity, the fertilization, and the control of vermin, tapping, the collection and transformation of maple water. They are respected by syrup makers by the way of the

terms and conditions, for all the steps in the production of maple syrup, of the maintenance and development of the sugarhouse, by way of collection and storage of maple water, the transformation of maple water and the cleaning equipment, storage of the finished product and its transformation of by-products.



NUTRITIONAL VALUE:

Pure, natural and even more! Sugar, corn syrup and maple syrup: all the same? Not exactly. Even though all three are sugaring agents, maple syrup contains more vitamins and minerals than the other two. Maple syrup contains significant quantities of zinc, iron and compounds found in B complex vitamins, mostly thiamine. Also, 50 millilitres of maple syrup provide 4% of the daily-recommended intake in calcium, 3% of the intake in potassium, 2% of the intake in magnesium and riboflavin. But that's not all! Recent studies report the sap contains polyphenolic compounds (phenolic and flavonoid acids) that have important antioxidant and organoleptic properties, with this wide nutrition range and its smooth sweet aroma, maple syrup adds value to your meals...nutritional value!

**QUANTITY MEASUREMENT PERCENTAGE OF (50ml)
UNIT DAILY INTAKE RECOMMENDED.**

ÉNERGY	173	Calorie
PROTEINS	0 grams	
FAT	0 grams	
CARBOHYDRATES	43 grams	
POTASSIUM	137 mg	3%
CALCIUM	43 mg	4%
IRON	0.7 mg	9%
ZINC	2.7 mg	25%
MAGNESIUM	6.7 mg	2%
THIAMINE	0.1 mg	8%
RIBOFLAVIN	0.03 mg	2%

SOURCE: HEALTH CANADA, CANADIANFILE ON NUTRITIONAL ELEMENTS, 2001

WHICH SYRUP DO YOU PREFER?

Did you know that the taste and colour of maple syrup throughout the season varies because of its natural composition? At the beginning of the season, the maple water has a high-grade of saccharose, whereas at the end of the season concentration of fructose and glucose is increased.

Saccharose, fructose and glucose are all sugars, however, the sugaring powers differ from one another. Therefore, the maple water collected at the beginning of the season will yield syrup that is not as sweet as that at the end of the season.

As with different types of sugar, the concentration of other natural components found in maple water varies throughout the season (amino acids and minerals). These composition changes of maple water affect the colour and taste of maple syrup, depending on the time of harvest. All these syrups do generally have good taste apart from some exceptions in which case these undesired tastes are not used for the consumer market. However, the adequate tastes are all harmonized together at the bottling stage to offer the consumer a constant maple taste.



