



Centre de recherche, de développement et de transfert
technologique acéricole inc.

Centre ACER

From the tree to your senses!

By

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Presentation

- Maple syrup production
- Marketing of maple syrup in Quebec
- Creating the «*Flavour Wheel for Maple Products*»
- Sensory evaluation of maple syrup

Collecting maple sap

One tap yield ~ 2 ½ pounds of maple syrup



35 pounds of sap ~ 1 pound of maple syrup

Processing of maple sap into syrup

High heat treatment into the evaporator

Evaporate water from the sap

Changes in maple sap physicochemical properties



Colour and flavour development



Maple syrup composition

Carbohydrates

- Sucrose
- Glucose
- Fructose

Vitamins

- Niacin
- Riboflavin
- Thiamin

Organic acids

- Malic
- Succinic
- Pyruvic



Minerals

- Potassium
- Calcium
- Magnesium
- Manganese
- Zinc
- Sodium

Other components

- Polyphenols
- Phytohormones
- Amino acids
- Etc.

Maple Syrup of Quebec Industry Sheet (FPAQ)

Marketing of maple syrup in Quebec

- Supply channels

- Direct farm sales (< 5 liters: 10%)
- Retail with intermediate (< 5 liters: 5%)
- Bulk sales (> 5 liters, barrels : 85%)



- Bulk sales (~ 200 000 barrels produced annually)

- Organized marketing system (Joint plan, Marketing agreements, Strategic reserve, Sales agency, Quotas...)
- Authorized buyers (60)
- Quality control



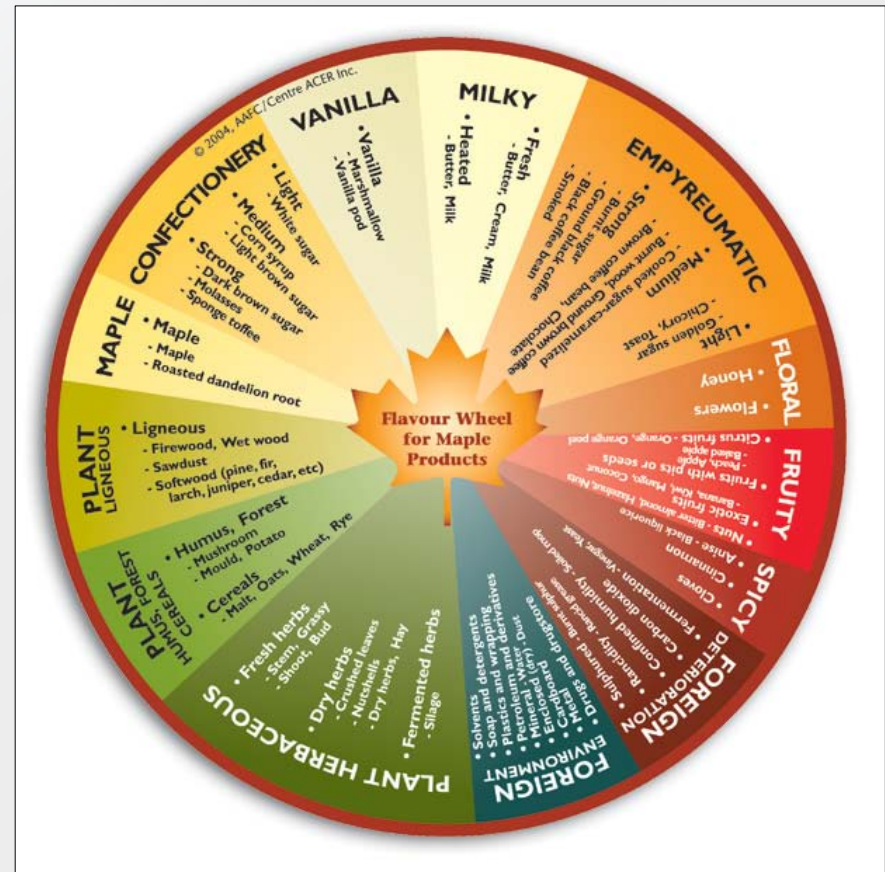
Characteristic flavour of maple syrup

- Maple syrup represents a unique product by its colour and flavour
- Current vocabulary varies with taste and experience of tasters and is mainly focused on taste defects of maple syrup (grading system)
- There was a need to establish a scientific basis to accurately and credibly characterize maple syrup flavour

Flavour wheel for maple products

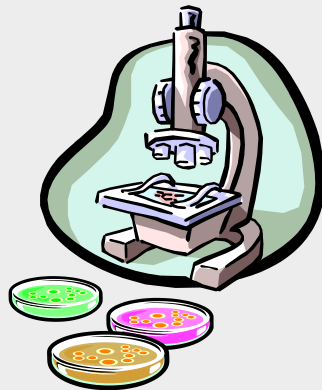
Flavour wheel for maple products

- Establishing a descriptive, documented and standardized lexicon to pinpoint the distinctive flavours of maple syrup
- Setting up a sensory expert panel
- Ensuring the reliability and performance of expert judges

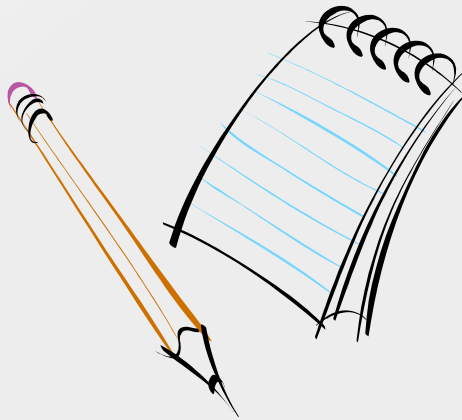


Flavour wheel for maple products

- **Research:** Explaining the maple flavour differences in terms of chemical composition and of processing parameters
- **Course:** Le sirop d'érable au goût du jour !
- **Workshops :** Initiation, in small groups, on how to taste maple syrup



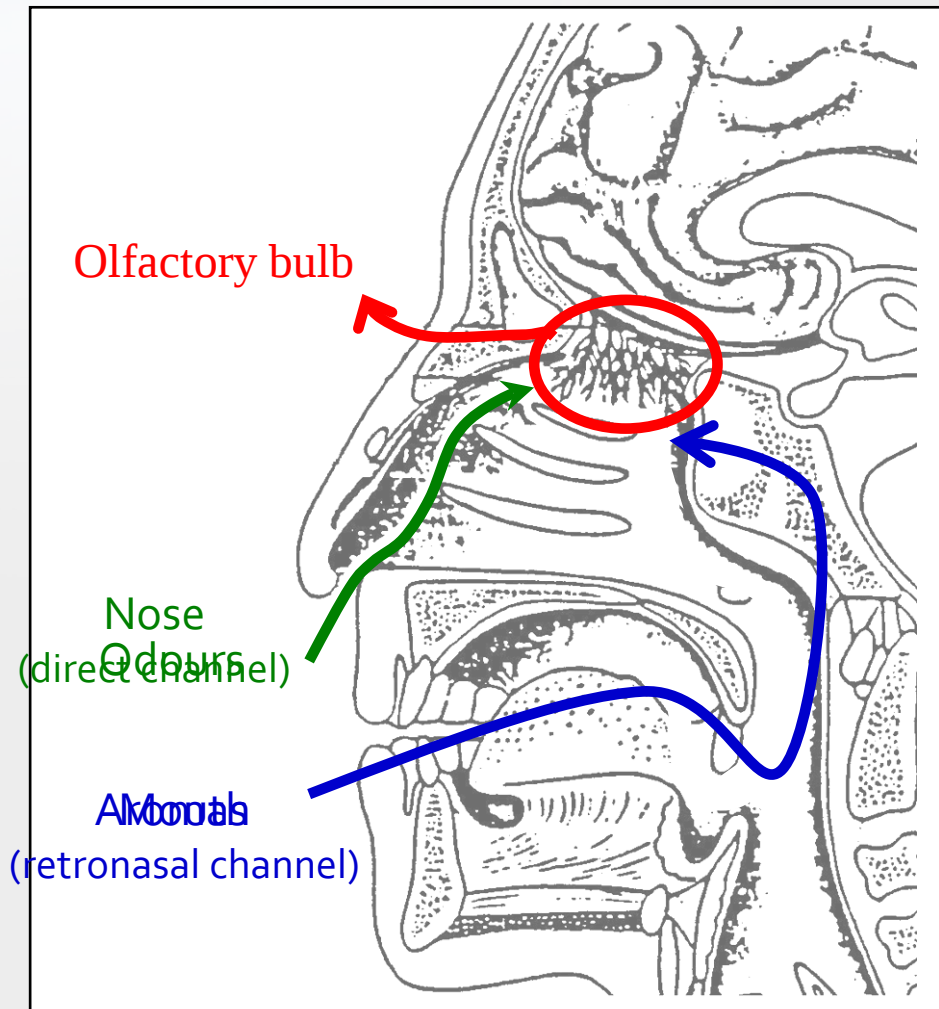
Sensory evaluation of maple syrup



What is sensory evaluation?

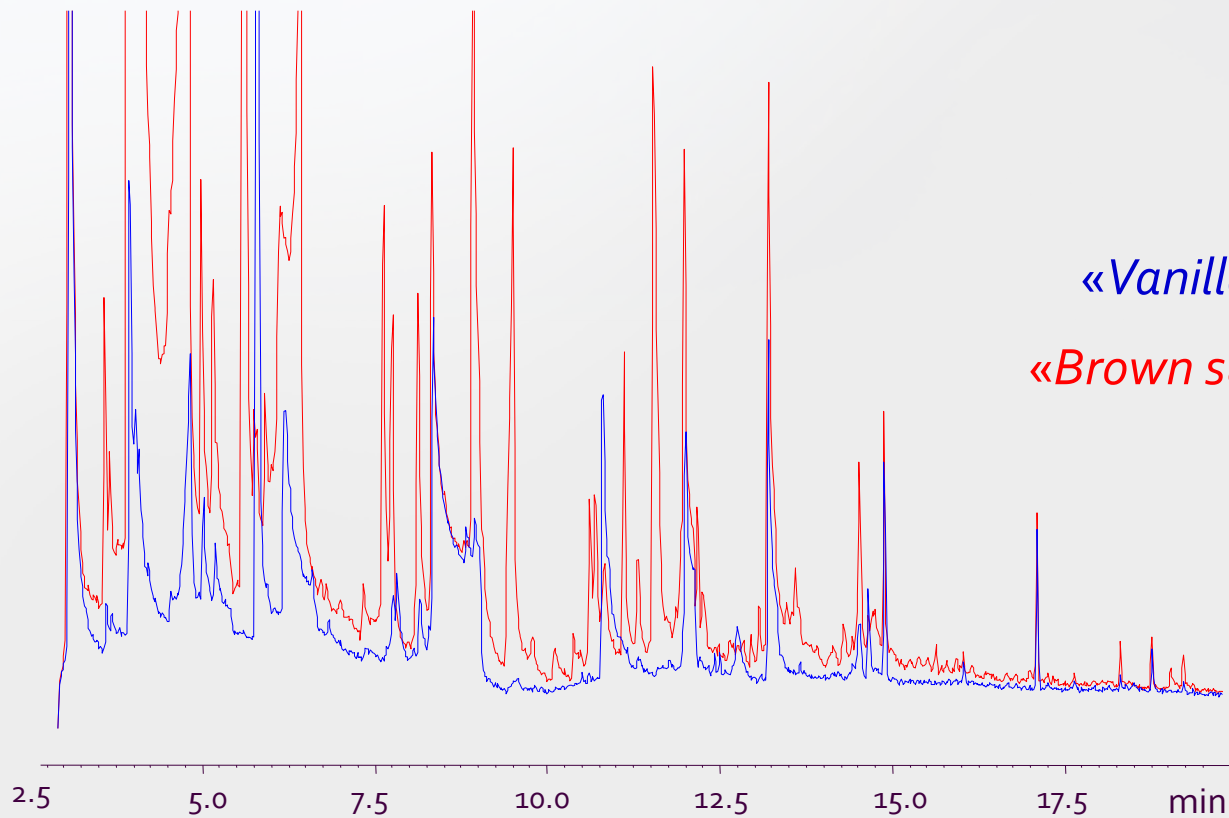
- It is a scientific discipline used to evoke, measure, analyze and interpret reactions to characteristics of foods and materials as they are perceived by the senses of sight, smell, taste, touch and hearing
- It uses a descriptive glossary and/or specific language, documented and standardized, to describe food flavours
- It is a useful tool to study various issues in R & D, production, marketing and more...

The perception of odorant molecules



The identification of odorant molecules

HS-SPME-GC/MS



«Vanilla»

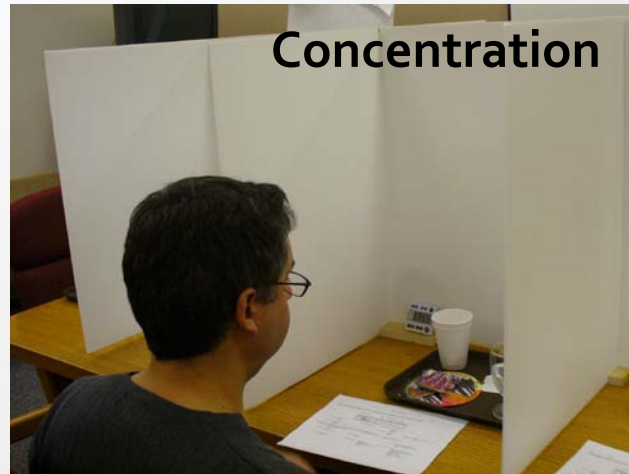
«Brown sugar»



How to taste maple syrup?



The tasting technique



In your tasting kit...

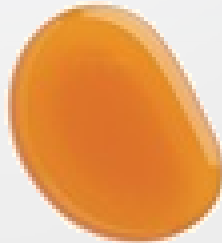
1



Light

Light transmission: 60,5 – 74,9 %

2



Medium

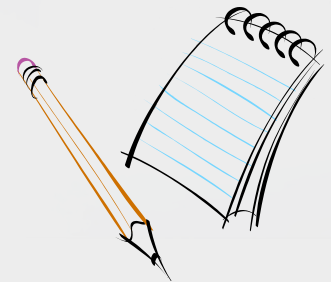
Light transmission : 44 - 60,4 %

3

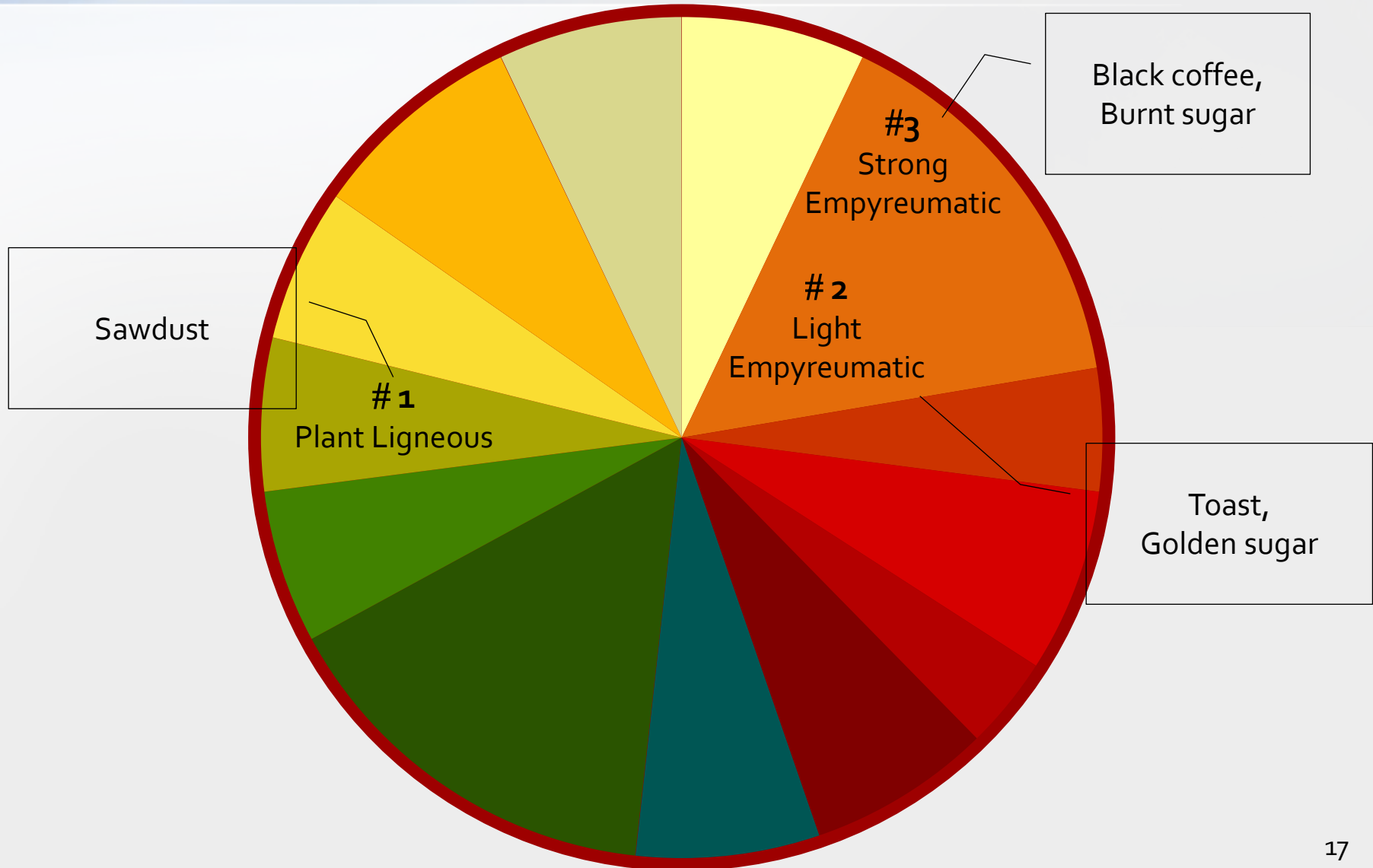


Amber

Light transmission : 27 - 43,9 %



And now, have fun...!



The Flavour wheel for maple products...

- Allows us to appreciate the richness of maple products
- Allows us to understand the variation sources of maple flavours
- Serves as a tool to assist the maple industry in evaluation of the quality
 - *Could be part of the quality management process*
 - *Could be part of the production records*

Thank you for sharing our passion!



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