

# An Overview of Consumer Research Conducted to Determine Support for a Standardised Grading System for Pure Maple Syrup

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## **Background and objectives**

In late summer, 2008 Cintech Agroalimentaire was mandated by the IMSI and the Federation of Quebec Maple Syrup Producers to undertake research on their behalf that would serve as input to a potential uniform grading system destined for consumers of maple syrup<sup>1</sup>. It was felt that such a grading system would not only be useful to producers and packers but would also help stimulate sales to customers. The attributes considered for the grading system included: colour, flavour (descriptors and intensity) and region of origin; in addition, the study investigated which descriptive terms best describe consumers' perceptions and judgements of what appeals to them with respect to maple syrup.

The specific objectives set out for the study were as follows:

1. Determine if consumers are able to discriminate between different types of maple syrup based on taste alone.
2. Verify if consumers are able to categorize different syrups into at least two categories based on visual clues alone.
3. Elicit spontaneous category names or attributes that differentiate maple syrups.

## **Methodology**

A two-pronged approach was adopted in the study. Consumers first participated in a blind taste test in order to assess their ability to distinguish one product from another based solely on their sensory characteristics (quantitative). A sub-set of these participants were subsequently invited to participate in a focus group designed to explore the way in which syrups are grouped based primarily on visual cues (qualitative).

The client provided a total of 13 different maple syrup products varying on colour code (AA, 4; A, 4; B, 3; C, 3), flavour (vanilla, 2; maple, 3; confectionary, 3; empyreumatic, 3; woody, 2) and intensity (<3.0/7-point intensity scale, 2; 3.0-3.9/7, 6; 4.0-4.9/7, 3; 5.0/7 or greater, 2). Two blended products (colour code, A; intensity, 3.0/7) were also included in testing. The client was responsible for both the choice and classification of the products tested.

## **Quantitative**

A total of 300 maple syrup users between 18 and 64 years old were tested in Quebec (106), Ontario (94) and New Jersey (100); there was a 60/40

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<sup>1</sup>Since that time, the author has left Cintech and is working as an independent consultant.

female/male split. The syrups were presented to participants in pairs in opaque glass in order to avoid visual cues; they were asked to evaluate if the two syrups were the same or different based on taste alone. In fact, all pairs were comprised of two different products but participants were led to believe that pairs could be either the same or different. Each participant tasted 8 of the 32 pairings tested. The fact that not all flavours were represented in all classes imposed an incomplete design on pair selection. After the 8 primary pairs had been evaluated, participants evaluated a 9th pair consisting of one of the blended products and table syrup (table syrup was included in the mix due to its popularity among consumers in general).

Participants were also asked to rate the product(s) on a 10-point rating scale, indicate which product they preferred when considered different and describe the product in their own words for the first 3 pairs. For the remaining pairs, a list of possible descriptors was provided in order to ensure that all possible descriptors were given consideration.

### **Qualitative**

A total of 6 focus groups of approximately 10 participants were conducted in Quebec (2), Ontario (2) and New Jersey (2). All participants were selected from the blind taste tests. Participants were first asked to reflect on their taste test experience and then to group the 16 different products used in the taste test based on their visual cues; the products were presented in small, transparent vials. They were asked to create between 2 and 7 groups of products that they felt "went together" with no criteria being suggested. Once the groupings were created, they were ordered from most to least preferred; merging of groups was permitted. Participants next assigned the words used in the taste test to the different groupings - a limited number of words were allowed to be used for multiple groupings. Finally, participants discussed the relative merits of the classification systems currently in use and provided suggestions for their ideal classification system.

### **Findings - what was learned**

Overall, consumers who participated in this study could only guess at whether or not the two products in a pair presented to them were similar or different. Although 100% of the pairs contained different products, only 58% said that this was the case; this is the equivalent to a coin toss.

If one considers all pairs with two different grades of syrups, ignoring differences in taste, the percentage saying that the products are different remains basically unchanged when an AA-Grade syrup is paired with an A-Grade syrup (59%) or a B-Grade syrup (55%) or an A-Grade syrup is paired with a B-Grade one (56%); when B-Grade is paired with C-Grade syrup, the percentage who say that they are different drops to 45%.

Similar results are observed when different tastes are paired and the differences in colour grades are ignored. The highest percentage saying that the tastes are different occurs when Maple is compared to Confectionary (58%) and the lowest when Confectionary is compared to Empyreumatic (39%). It

should be mentioned that comparisons with Woodsy tasting products were ignored due to the fact that one of the products tended to be universally rejected by participants and was considered to be an extreme outlier.

When it comes to liking, three of the four highest rated products are the B-Grade syrups (Maple, Emphyreumatic, Confectionary) with the highest score going to B-Grade, Maple flavour (6.6 on 9-point liking scale). Three A-Grade (Maple, Vanilla, Confectionary) and three AA-Grade (Vanilla, Woodsy, Maple) syrups also score at least 6.0. With the exception of A-Grade, Woodsy which scores a very poor 3.6, the remaining C-Grade products each score a fairly respectable 5.4 or higher. The data suggest that there are no major differences in liking scores based on grade (with the possible exception of C-Grade) or flavour (A-Woodsy being an exception) although the B-Grades and the A-Grades tend to be somewhat more appreciated.

The data were also analysed in order to determine if taste intensity has an impact on liking. Inspection of the data clearly demonstrates a completely flat curve for intensity scores ranging from 2.8/7 to 4.8/7; scores fluctuate between 5.7 and 6.6 on the 9-point liking scale. Liking drops off dramatically for the two most intense products - C-Grade Emphyreumatic, 5.5/7 and A-Grade Woodsy, 5.6/7; scores of 5.4 and 3.6 are observed on the 9-point liking scale.

When asked to describe the products they tasted based solely on their sensory experiences, participants tend to use the terms "sweet" and "thick" regardless of the grade of the syrup tasted. AA-Grade syrups tend to be differentiated from other grades by the terms "smooth, mellow, light, thin", A-Grade syrups are also characterised by the terms "smooth and mellow" but there is indecision about whether the maple taste is "light" or "strong", B-Grade syrups are labelled as "strong maple taste, natural" whereas C-Grade syrups get characterised as "burnt, bitter, artificial, strong".

The qualitative part of the study provides results that tend to confirm and complement those observed in the quantitative phase. When asked to group the 16 products presented to them visually, participants in Quebec and Ontario use 6-7 distinct groupings whereas those in New Jersey use 3-4 groupings. As one might expect, the groupings are generally based on the intensity of the colour of the product although a few participants also take viscosity into consideration.

When asked to organise the groups by attractiveness, the number of groupings tend to be reduced to 3-4. The most preferred products are those in the medium to medium-dark range (Grades A and B). The least preferred products are those classified as AA-Grade although C-Grade products are considered as equally unattractive by some of the participants. Positive words used to describe the more preferred, darker syrups include: "thick, bold, rich, full-bodied, strong maple flavour, substantial, robust", those used to describe the middle category include "creamy, smooth, mellow, amber, golden, clear", while words like "delicate, mild, subtle, light" are used to describe the lighter coloured syrups. Participants tend to feel that the intensity of the colour of the syrup is a very good indication of the intensity of its taste and perhaps its quality.

Participants were also asked what information they would like an "ideal"

classification system to communicate to them; they provided the following elements: it's pure maple syrup with nothing added or taken away, the colour category to which it belongs, a description of the intensity of the maple taste (flavours other than maple are viewed with suspicion), the country and province/state of origin.

### Summary

- Consumers have difficulty discriminating one maple syrup from another based on taste alone; there is a tendency, however, to prefer the taste of medium to medium-dark syrups.
- Colour is very important to them.
- Consumers generally use 3-4 categories when grouping maple syrup based on its colour.
- They tend to assume that there is a one-to-one relationship between the colour of a syrup and the intensity of its taste - darker colours have more full-bodied, intense tastes. Visually, the medium to medium-dark products are preferred.
- Words used to describe different visual grouping of syrup tend to reflect this assumption; i.e., darker = robust, bold, full-bodied, etc., lighter = delicate, mild, subtle, etc.
- They want maple syrup to have a maple taste; other tastes cannot override the maple taste without creating the suspicion that something was added to the product.

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