# Quality evaluation of fresh and bloomed filled chocolates in House of Quality 

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## Objectives

Companies producing filled chocolates often deal with the problem of fat bloom. This is caused by oil migration of the filling to the chocolate couverture. Consequently , the sensory quality of the filled chocolates decreases.

## AIMS:

$\checkmark$ Development of a structured approach for the maintenance of sensory quality of food products through House of Quality with the application on filled chocolates.

## Materials \& methods

PRODUCTS:

- Six variants of pralines were produced in Belgium and Hungary



## STORAGE

$-18^{\circ} \mathrm{C} \rightarrow$ keep fresh
$20^{\circ} \mathrm{C} \rightarrow$ slow bloom
$23^{\circ} \mathrm{C} \rightarrow$ fast bloom
INSTRUMENTAL ANALYSIS

- Colour measurement

SENSORY ANALYSIS:

- Trained panel

QDA with 28 descriptors
on appearance, aroma, texture and flavour

- Consumer panel

Tasting session for preference

## Results

## Product Sampling

No blooming occurred for the samples stored at $20^{\circ} \mathrm{C}$, therefore only fresh samples (stored at $-18^{\circ} \mathrm{C}$ ) and bloomed samples $\left(23^{\circ} \mathrm{C}\right.$ ) were used


## Consumer test

- The importance of appearance, aroma, texture and flavour for the consumer are measured with question from the Food Choice Questionnaire (FCQ).
- A tasting session is used to reveal the overall preference for the filled chocolates within the three groups. The results helped to select the samples to construct the three Houses of Quality.
- Further, preference on appearance, aroma, texture and flavour for the different samples is given in the competitive analyses graph in the House of Quality.


## Sensory analysis

- A trained panel evaluated the most preferred sample on 28 attributes. These values are used as target values to achieve when producing filled chocolates within the same group of samples.

Integration of the results in the House of Quality

- Customer requirements and competitive analysis are constructed from consumer test.
- The central part, the interrelationship matrix, is established through extensive literature study. The attributes that belong specifically to one of the four constructs (appearance, aroma texture, flavour) receives a value 9 . Some of the attributes also have a moderate (3) or slight (1) influence on another constructs.
- The roof of the House, technical correlation matrix, gives the correlations between the 28 attributes. When changing a certain attribute, a correlated attribute can be affected in a positive or negative way.
- The matrix of technical properties and targets is used for formulating conclusions. The target values are given by sensory analysis. Absolute and relative weights are calculated whereas the scores "difficulty to accomplish" changes in specific attributes are distilled from the literature.



## Conclusions

The constructed House of Quality shows that flavour is the most important characteristics to the consumers when evaluating filled pralines. From the competitive analysis it is clear that the main differences between the pralines are found in appearance and texture but to a lesser extent in aroma and flavour. The target values are indications in future use of sensory analysis of pralines. The relative weight indicates that blooming is the first thing that needs to be handled but it is also the most difficult change to accomplish. It is possible to extend the House of Quality with results of instrumental analyses or even process parameters.
This House of Quality is not built on competitive products but on fresh and bloomed products which is not the traditional way of using this tool but helps to understand that blooming is the most important item to adjust in order to provide the consumers what they need. Moreover it gives a clear overview on what influence blooming has on all other sensory attributes of the pralines. This makes it possible to set target values and reveal where improvements can be made to the product.

