



Institut Paul Bocuse, 16 June 2010

3rd symposium at the Research Center “Cereals and Breads, sources of pleasure and health”

For the third consecutive year, the Research Center at Institut Paul Bocuse has brought together researchers, specialists and experts from industry. Together, they shared the latest findings and the results of their works on the theme **“Cereals and Breads”** – *their place in modern eating habits and their relation to pleasure, health and the economy.*

More than 60 people gathered at this occasion, coming from all over Europe and America, representing applied research, the agri–food sector, professions in the baking industry, the cereals sector and higher education.

Conference Introduction

Jean–Luc Poujauran, Chef Baker

A baker’s son from Mont de Marsan, Jean–Luc Poujauran has owned a bakery in the 7th district of Paris for 7 years.

He offers a wide variety of breads in season: large country bread, bread with hazelnuts and raisins, bread with figs and olive bread during the season of fresh goat’s cheese. He works with *“modern products and quality standards and an ancestral system of production”*, based on pitching with natural leavens, flour ground with a stone grinder, hand–gathered salt from Guérande and purified water. His method of production is also part of an environmentally–friendly approach requiring the use of raw materials produced within a 100–mile radius (161 km) from the place of production. Jean–Luc Poujauran gives particular attention to the well–being of his personnel that must have, despite the rigors of the trade, *“a normal lifestyle”*. Currently, he makes deliveries to 200 restaurants daily, going from the neighborhood bistro to certain great chefs in Paris with Michelin stars. For him, the voluntary process of offering quality bread and matching it with the dishes tasted is just as important as the choice of the wine.

The first speaker of the day charmed all the participants by the force and passion of his testimonial, a professional totally enthusiastic about his trade.

Xavier Alliot, PhD student at Institut Paul Bocuse / CRNH U-Lyon 1

Behavioral and metabolic measures: a combined approach to study eating patterns

Xavier Alliot presented a unique methodology made possible through the alliance between the Institut Paul Bocuse Research Center and the Research Center for Human Nutrition (CRNH), to study the mechanisms of satiety and appetite control. The metabolic measurements (kinetic measurements for numerous hormones including the biomarkers for appetite) are made at the CRNH that are then combined with behavioral measurements (structure, length and rhythm of meals, nutritional and kinetic composition of consumption during the meal), made in the experimental restaurant at the Institut Paul Bocuse Research Center.

This approach specifically enables the consequences on appetite of the frequency of meals to be analyzed. These innovative methodological aspects interest researchers involved in the understanding and prevention of obesity as well as agri-food professionals who are fine tuning new products capable of “prolonging the sensation of hunger”.

Emilie Ginon, PhD student at INRA Flavic, Dijon

Bread acceptability and valuation in different contexts

In a context characterized by a diversification of the offering on the French bread market, especially along the axis health and pleasure, Emilie Ginon is interested in the question of the acceptability and the valuation of this product by consumers.

The objective is to measure the importance of the sensorial characteristics (taste, appearance, texture) and extrinsic characteristics (label, nutritional information) on the perception of bread. Several experimental studies combining methods of sensorial analysis and experimental economics have thus been conducted in order to measure consumer preferences for different types of breads presented under conditions of controlled information.

In addition, the results of these studies in the laboratory were confronted by measurements in a real context (bakery). They indicate that consumers are prepared to pay slightly more for bread labeled as a “source of fiber”. However, the presence of complementary information concerning the potential benefits of fiber on health does not bring about any additional value enhancement.

Chantal Simon, Professor, Lyon South Hospital, Lyon University

A socio-ecological approach of food behaviours

Human behaviors for eating habits are determined by a large diversity of factors linked to foodstuffs, people and the environment. Scientists have thoroughly studied the impact of the characteristics of foodstuffs and Men on eating habits; however, literature covering the environmental factors is less abundant.

Amongst the great diversity of objects brought together under the term of the environment, there are also the characteristics of urbanization of the places of living. This object of study has heretofore only been very little described and no study has been conducted on the European continent. The ELIANE project, presented by professor Chantal Simon from the Hospitals of Lyon, should enable the production of knowledge on the relations between behaviors for eating habits and physical activity for French adults and adolescents and the characteristics of the living environment of these individuals.

This project is funded by an ANR program (National Research Agency) and brings together a multi-disciplinary team of researchers: geographers, sociologists, specialists in nutrition and public health...

Inger Bjorck, Director Anti-diabetic Food Center, Lund University, Sweden

Memorable meals: a reflection on the metabolic and cognitive memory to cereal-based meals

Metabolic syndrome is an inflammatory illness that can lead to type II diabetes, obesity or even disorders of cognitive functions. Eating habits rich in fruits, vegetables and whole-grain cereals act in a protecting way vis-à-vis this illness. Epidemiological studies have enabled the observation that the progression of inflammatory illnesses is fostered when post-prandial glycemia is high. In addition, the introduction of foodstuffs in food consumption habits containing a low glycemic index diminishes the risk of developing metabolic syndrome.

The results presented show that the modification of ingredients (adding insoluble food fibers for example) or the production process (fermentation for example) can lead to a reduction of the glycemic response linked to the consumption of a given foodstuff. Adding rye in bread diminishes glycemic and insulin responses, augments the sensation of fullness and diminishes the energy consumed at the following meal by 16% compared to wheat.

The metabolic memory of foodstuffs is put into place for example when subjects consume rye-based products in the evening. Their glycemia before eating is reduced and the fermentation of fibers by the bacteria in the colon seem to configure the next morning's breakfast. Rye plays a role near that of prebiotics by modifying the activity of colon bacteria.

Marie-Christine Marcuz and Elisabeth Riou, Kraft Biscuits Europe

How does the industry respond to consumer evolution in the cereals-based foods universe?

From the number of calories to the practicality of packaging, and taking into account sustainable development, consumer expectations evolve. In order to meet these expectations quickly and accurately in a highly-competitive sector (in Europe there are 10,480 new cereal-based products per year, of which 900 launched by Kraft Biscuits), the food industry must innovate.

Marie Christine Marcuz and Elisabeth Riou from Kraft Biscuits Europe present the method developed and used in their group. The products are "co-developed" with consumers united in focus groups, and thus involved from the validation of new concepts to the hedonic assessment of the finished product. It is then necessary to adapt the production methods, recipes and packaging to meet customer desire. For example, in order to satisfy the growing concern for sustainable development, the industry can diminish the number of miles traveled by the product and use recyclable packaging. Also, cookies with a long period of success are reformulated for better nutritional balance while taking into account consumer preferences who express reluctance regarding significant reductions in levels of sugar or fats.

Olivier Wathelet, post doctoral fellow Institut Paul Bocuse / Seb

Ethnography of culinary practices as a tool to focus on specific foods

Rarely studied as a practice, culinary activity requires a series of complex judgments. In order to understand how they take form, a cognitive ethnographic study has been set up inside the experimental kitchen at the Institut Paul Bocuse Research Center.

Nine professional chefs prepared two recipes. These preparations were filmed and then used as a support for explicitation interviews with the chefs. This method not only enables each professional to describe his/her activity, but also takes into account their subjective feelings at the moment of the action. Based on the example of cooking a risotto, this work shows that the organization of judgments all throughout preparation takes the form of a sensorial process. It is a succession of sensorial indicators that enables the multiplication of tasks. The study also shows how time management is not only based on controlling the length of time, as it is classically described by professionals during interviews, but also by managing the speed of transformation of foodstuffs.

This process of qualitative analysis can be applied to understanding the impact of a product on the techniques used as well as describing and distinguishing forms of distinct culinary competence.

Concluding conference

Steven Kaplan, Professor Cornell University

It must be good to think before it's good to eat: reflections on the cultural and gastronomical role of bread in French history

France maintains a complex relation with bread. To understand the main chapters of the recent evolution in the quality of bread in France, two dimensions must be privileged: necessity and the imaginary.

A symbol and an instrument of power, bread is a dietary resource of the highest order. But beyond its nutritional qualities, it is its symbolic value that confers a special status to it, perfectly illustrating the famous words by Claude Lévi-Strauss: "Nourishment is good to think before it's good to eat." The opposition between white bread and dark bread has structured the history of bread consumption in France. Other factors enable the fall in consumption since the end of the 18th century to be understood, in particular, industrialization, modernization and a stigmatizing medical discourse. More recently, hedonic consumption has modified the perception and production of bread.

In conclusion, Steven Kaplan makes a call for the importance of a re-enchantment with bread, particularly in phase with a French exception that certain high-quality bakeries maintain with traditional techniques.

Bakery and cereals demonstration

Jean-Marc Berthomier, Head baker at Institut Paul Bocuse

Jérôme Celle, a 1993 graduate from Institut Paul Bocuse, President of the Board of the company Celnat
(Producer and distributor of cereal-based products originating from organic agriculture since 1974)

The Head baker, Mr. Berthomier, after having presented an interesting typology of cereals and breads, commented on the production of four different breads (bread with type 65 flour and wheat germ, bread with whole-wheat flour with 5 cereals and grains and 5 vitamins and 5 minerals, whole-wheat bread with fine spelt and oats, and finally, bread with type 80 flour and grains and omega 3 and vitamin E.

As for Jérôme Celle, he presented the specificities of the different types of cereals used, their nutritional and organoleptic qualities, as well as their beneficial impact on health and well-being. These are all the more positive when all the cereals are grown using the strict rules of organic agriculture.

This symposium was greatly appreciated and enabled everyone to complete their knowledge in the various scientific fields under study while covering the technical aspects of working with bread and cereals. During the day, conference speakers and participants met to take part in a dedicated set menu, with a base of cereals and specialty breads, a meal especially concocted by Chef Berthomier and his colleagues in the kitchen.

The fruitful exchanges confirmed the interest of the multi-disciplinary positioning of the Research Center at Institut Paul Bocuse that thereby received a lot of encouragement to pursue its annual research symposiums in this spirit... Meeting on 3 June 2011!

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