Understanding and Delivering Quality

The quality of cereals and cereal-based foods is a subject that concerns all of us and accordingly attracts a lot of attention. In ingredient supply and manufacturing environments there is always someone with the responsibility for quality. Often (and rightly), the focus on quality is in ensuring that the ingredients and foods prepared from them are “safe” to eat and are therefore of the “right” quality. The concept of quality management has grown from its origins in the engineering industries to pervade every aspect of modern manufacturing and service-based activities. Undoubtedly, we are all enjoying the benefits of safer foods, but are we actually getting a better quality of food product?

Perhaps we have to start by defining what we mean by quality before we can begin to improve it. I think we can take for granted that a definition of food quality will include some statements about the need for it to be safe to eat. This is common sense and it often surprises me that the food industry attracts such fierce criticism over many of the ingredients that it uses. You know the type of rant that is often seen in some areas of the press about the use of additives and E-numbers. The latter were intended to provide a common means of labeling ingredients, and to me the “E” always stood for “evaluated”; that is, we have looked at the impact of these ingredients and we know enough at a given moment in time to allow their consumption by humans and other animals. Manufacturers using E-numbered ingredients are hardly “evil”; after all it is not in their best interests to poison their customers as it tends to be a very market-limiting exercise!

In the general concerns over food quality, it is the nutritional role that cereal-based foods play that tends to be overlooked. There are still many people around the world whose need of a quality food is simply defined on the basis of getting sufficient energy and nutritive value from the foods concerned to sustain their own life and that of their families. To deliver improvements to the qualities of such foods we tend to turn to fortification with essential vitamins and minerals. Some countries, like the United Kingdom, have practiced cereal flour fortification for many years, while others are making such moves for the first time. Such changes are important for the cereals world because they continue to emphasize the role that cereals can play in delivering the right quality of nutrition in the diet.

At the other end of the spectrum, improving the quality of cereal-based foods to make a greater contribution to the diet of many countries is receiving increasing attention. The role of fiber and the lack of it in many diets remains a “hot topic.” Whole grain foods are ideally placed to contribute to the reduction of obesity and a range of undesirable medical conditions. New products abound and the qualities of more traditional whole grain foods are constantly being improved. In the past, consuming whole grain foods was a bit like taking nasty medicine, they did not taste nice but you consoled yourself with the thought that they must be doing you some good.

Constant quality improvements are now starting to deliver organoleptic qualities to whole grain foods that are more readily appreciated by consumers. However, for the development technologist, the big challenge is still out there—how do you get the majority of children to eat bread with visible bits of bran in it? Using pale or colorless fibers has gone some way to delivering bread with greater “child appeal,” but we are still a long way from where many dieticians and doctors would like us to be when it comes to consuming whole grains. So, what is the barrier? I guess some of it has to do with the psychology that many of us do not like being told what we should or should not eat, especially if we live in a country where getting food is just a case of going to the nearest superstore. I suspect that for many of us part of the problem is that eating is now as much about the pleasure that we get from the activity as it is about consuming enough food to live and work.

And that brings me back to quality. The perception of what is the “right” quality for a food is highly individual and part of our cultural heritage. Cereal-based foods have been eaten by human-kind for millennia and with time we have evolved a wide variety of different product forms in different parts of the world. The concept of “bread” is global but the products are as diverse as the different races that inhabit the planet. This means that if we set out to improve product quality we must be mindful of what particular product qualities will match the consumer group that we are aiming for. In doing so, we need to be aware of the link between the sensory properties of foods and their “structural architecture,” that is, the mechanics of how the product is formed because this plays a major role in convincing consumers that the product has the “right” qualities.

The U.K. sandwich market has developed into a major industry with some large plant bakeries only making bread for a sandwich assembler. The U.K. sandwich is based on two slices of bread with a range of different fillings between them. The product is simple and the packaging is effective in preserving the relevant product qualities. The market continues to expand with sales through the European mainland, increasing to such an extent that production of U.K.-style breads is being taken up in many countries (Figure 1). The demands made on the baker to make and deliver the appropriate qualities of size, shape, texture, and eating characteristics are stringent. Increasingly, they are coupled with the push for healthier products (e.g., whole grain, multigrain, fiber enriched) and medical pressures, such as reduced salt. Food safety is ensured because the product has to be made under strict hygienic control and held at refrigerated temperatures. Holding the product chilled certainly makes for safer sandwiches but increases the challenge for the bread baker, not
least because bread staling proceeds fastest at chilled temperatures and cold sandwiches lack flavor. All in all, the development of the U.K. sandwich from home to mass production covers all of the bases for improving quality.

The challenges for improving cereal-based foods are not getting any fewer, so the need to continue seeking continual quality improvement is greater than ever. The diversity of cereals and their wide variety of intrinsic properties provide many opportunities to improve existing product qualities. And to develop new ones, all we have to do is remember that the “right” product quality is the one that brings the consumer back for more. And as a manufacturer, if we can make some money along the way, then so much the better.

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Fig. 1. “English” sandwich display in a Spanish supermarket.

An NP Analytical Labs ad appeared here in the printed version of the journal.