Breakfast Cereals

Some people say that breakfast is the most important meal of the day; it certainly should be, as it provides a critical input of calories and nutrients for most of us at the start of the working day. The cereals industry has become a key provider of breakfast meals, offering a wide variety of products employing a wide range of cereal grains, either alone or in combination. Whole-grain cereals have become particularly popular, and many long-lived branded products and their imitators are available globally. In spite of the longevity of many breakfast cereals, new products continue to be added to the category.

Consumers readily recognize the role of breakfast cereals in the diet, as I was reminded when I arrived at an immigration desk and replied to the officer’s questions regarding my visit and my declaration that I was a “cereal scientist.” “How come so many people are getting together to talk about breakfast cereals?” was his response, followed by “And, what’s the best one to choose?”

Health Benefits of Breakfast Cereals

On the whole, breakfast cereals have a relatively healthy image, but they are not without their critics. In particular, concerns have been raised over the levels of sugar and, in a few cases, salt present in some breakfast cereals. A little sugar used with breakfast cereals goes a long way toward increasing their acceptability and palatability, particularly with younger consumers. This is, of course, why concerns are being raised by some nutritionists, as they believe this may educate younger palates to continue to seek sweeter and potentially higher calorie products throughout their lives and may contribute to immediate and future obesity problems. However, one might raise the point that in an energy-balanced diet (intake and output being equal) the net effect of sugar in breakfast cereals would be limited.

Importance of Bowl Life

For consumers, the convenience of eating breakfast cereals is clear. Once out of the package, the addition of a suitable liquid can transform and add to the nutritional value of the meal. With the addition of cold or warm liquids a simple bowl of dry cereal is transformed.

Measurement of the texture of cereal-based products is well understood by many of us involved in the industry, especially changes in product qualities over the shelf life of a product (e.g., bread crumb staling). After coming into contact with a liquid, the texture of breakfast cereals rapidly changes. The time span for these changes is measured in seconds and minutes rather than days and weeks, as is the case for so many grain-based products.

Those involved with breakfast cereals talk about “bowl life,” and relevant sensory and objective testing methods (Fig. 1) have been developed to assess it. The low moisture content of breakfast cereals and any coatings used make significant contributions to bowl life, but there is also a key role played by the product structure. Dense, less aerated structures take longer to hydrate and soften and so tend to have a longer bowl life.

Listening to Cereals

Determining the optimal bowl life is a tricky challenge because the requirements can vary, not only with the desired product but also with the consumer. The crunchiness of breakfast cereals plays an important part in their evaluation and appreciation. Especially important are the auditory responses we receive as we crunch our way through a bowl of cereal. The collection of acoustic data during a texture test synchronized with a recording of the force data is of particular interest in
testing brittle breakfast cereal products. An example of an acoustic rig (in this case used with cookies) is illustrated in Figure 2, and the type of data record that might be obtained is illustrated in Figure 3.

**New Opportunities for Delivering Health Benefits**

Personal preferences for breakfast cereal sensory characteristics are strong and highly individual. With the advent of the cereal bar, the popularity of traditional breakfast cereals has been extended to an even more convenient form for the first meal of the day. Once again the versatility of cereal grains is being demonstrated as they are combined with dried fruits and nuts to create new sensory and nutritional characteristics. The popularity of such bars extends beyond breakfast, and they are now often seen as a healthier alternative to cookies and muffins with coffee and tea.

There are many opportunities for breakfast cereals to deliver health benefits: for example, the role of oats in contributing to the management of cholesterol levels. The rigorous evaluation procedures associated with making health claims in the European Union should not be seen as a barrier. However, to develop a sustainable health claim for a breakfast cereal it may be necessary to consider some reformulation to reduce ingredients that may be viewed as having negative implications, e.g., sugar and salt.

**Risking Your Brand**

One argument for reducing sugar in breakfast cereals (those few containing salt are already being reformulated) is that it is a simple case of re-educating the consumer palate—easy to say but not always easy to achieve. I was reminded of how difficult it can be to re-educate consumer palates when my own favorite whole-grain breakfast cereal underwent a change. The “simple” change was the source of wheat used to make the product. In part, the driving force was to reduce costs, but while the overall form of the final product remained essentially the same, there was a noticeable change in product color and texture. The impact on bowl life was less noticeable, but nevertheless, the changes were enough for this consumer to seek out and try alternatives. Happily for the manufacturer, after a period of “experimentation” I returned to my childhood favorite, but it still serves as a reminder of the risks associated with changing your brand.

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