



Chris Seal



Kathy Wiemer

# Carbohydrate Quality: Exploring the Whole Story

Chris Seal and Kathy Wiemer  
Guest Editors

Carbohydrate quality (Carb Q) has sparked lively debate in the nutrition world for several years. Many scientists focus on individual carbohydrate components (e.g., fiber, sugar, starch, whole grain) and their roles in diet and health but do not explore the multifaceted roles of carbohydrates. This issue of *Cereal Foods World (CFW)* explores Carb Q from a range of perspectives and tries to clear-up misconceptions about dietary carbohydrates and their varied roles in diet and health. Thought-provoking scientific reviews from leading carbohydrate scientists and communicators examine the complexities and nuances of the carbohydrate story—which are not as simple as some might believe.

On the one hand, carbohydrate foods are maligned as not important nutritionally because they generally require some form of processing to be edible, or in some cases, all carbohydrates are classified by consumers as sugars. These overly simplistic assumptions have led many consumers to believe that low-carbohydrate diets (i.e., high-fat or high-protein/low-carbohydrate diets) are healthier. Additionally, the anti-carbohydrate trend has been fueled by the gluten-free movement, which has also negatively affected consumer perceptions of grain-based foods.

From a scientific perspective, mounting evidence confirms the health benefits of whole grains and dietary fiber and, overall, provides a more complex and nuanced story about the role of carbohydrates in health.

Joanne Slavin's feature article, "Carbohydrate Quality: Who Gets to Decide?," sets the stage for this issue. Joanne provides a framework for defining dietary carbohydrates and their various roles in dietary patterns and human health. This broad, contextual review of various carbohydrate components raises key questions: how can Carb Q be evaluated and who should evaluate Carb Q?

Barbara Schneeman's feature article, "Role of Fiber in Carbohydrate Quality—Meeting Dietary Fiber Recommendations: What Counts?," reviews the evolution of the role of dietary fiber in the context of diet and health and how some countries have shifted the scientific basis for dietary fiber definitions from analytical methodologies to physiological endpoints and/or health benefits.

In their article, "Health Benefits and Recommendations for Daily Whole Grain Intake," Chris Seal and Frank Thieleck explore the value of consuming the "whole of the grain" to boost Carb Q. They show how the scientific evidence related to whole grains has evolved and address the challenges in defining whole grain and whole grain foods, specifically in relation to public policy and intake recommendations.

Luc Tappy's article, "Quality of Sugars and Sugar-Containing Foods," delves into free sugars and their role in diet and health, including an excellent description of how free sugars are metabolized. This article also highlights the difficulties in defining free and added sugars, which impacts how scientific evidence is interpreted and affects both industry and consumers.

Ndegwa Maina and Kati Katina show how manufacturing processes can modify the potential "quality" of carbohydrates in foods in their article, "Effects of Processing on the Functionality of Cereal Polysaccharides." This article illuminates the huge potential for manufacturers and product developers to leverage new technologies to improve Carb Q and potentially to market products based on better knowledge of carbohydrate functionality.

In the article, "Is Everyone Really on a Low-Carbohydrate Diet? Consumer Perceptions of Carbohydrates and Sugars," Allison Dostal Webster and Kris Sollid examine consumer attitudes toward carbohydrates. Consumer perceptions of carbohydrate components vary but are generally negative (except for whole grain and dietary fiber). This article clearly identifies the need for simple, accurate communications to convey critical facts about carbohydrates to improve consumer knowledge and awareness.

As cereal and nutrition scientists grapple with the complexity of distilling carbohydrate science into meaningful consumer messages, glycemic index (GI) sits in the middle of the debate. Upcoming point/counterpoint articles from Effie Vigiuliou et. al. and Julie Miller Jones dive into the controversy surrounding GI and glycemic load (GL) in building healthy diets. The point article argues that GI/GL should be used to build healthy diets, while the counterpoint article argues that there are significant issues with using GI/GL as the (sole) basis for selecting foods to build healthy diets. As a preview, the abstracts for these articles appear in this issue of *CFW*; the full articles will appear in the July-August 2011 issue.

Both science and controversies influence how nutrition and health policies are formed in many countries. We hope that the articles in this issue of *CFW* will support the application of objective, sound scientific data to develop public policies, educate consumers, and guide industry about carbohydrates and health.

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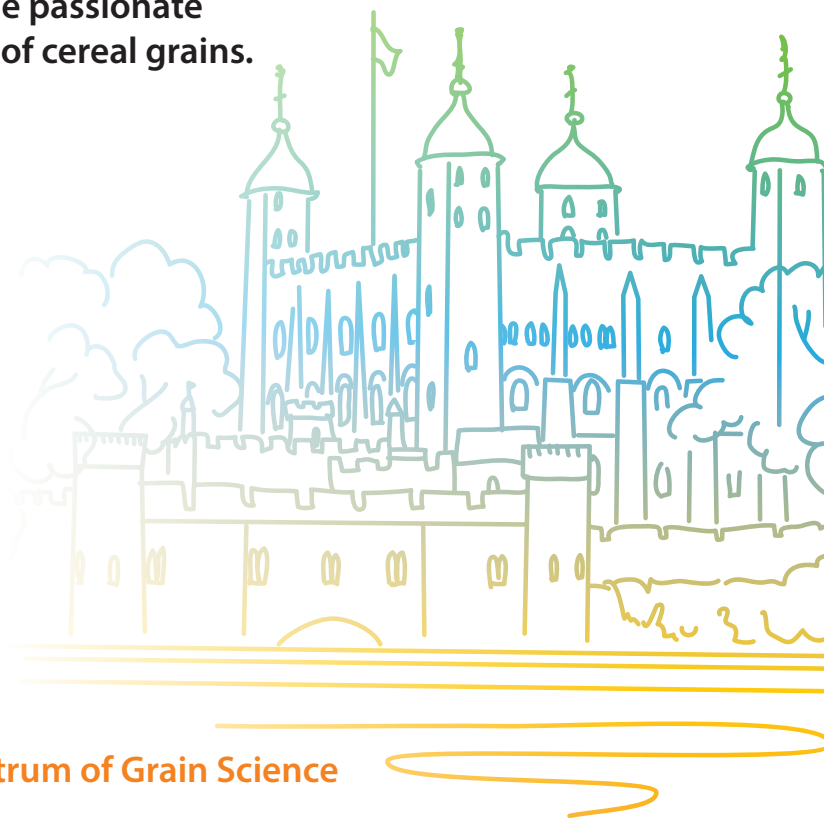
## Keynote Highlights



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**Professor Achim Dobermann**  
*Director & Chief Executive,  
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Digitalization to Revolutionize:  
The Grain Value Chain of the Future  
**Dr. Ian Roberts**  
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