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Grains and Pulses Fuel Consumer Trends

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Guest Editors

What comes after the 2016 International Year of Pulses? We see expanding opportunities for both grains and pulses to address the latest consumer trends, as well as global nutritional and food security issues. But before we delve into grains and pulses, it might be useful to define them:

Cereal grains are the edible seeds of specific grasses belonging to the gramineous family. Wheat, corn, and rice are the most common cereal grains. Rye, barley, oats, triticale, millet, and sorghum are less common, as are spelt, freekeh, emmer, and einkorn.

Pulses are the dried edible seeds harvested from the pod of a leguminous plant. Peas, beans, lentils, and chickpeas are the most common pulses.

Increased demand for healthier and high-protein foods across the globe is creating opportunities for cereal scientists to innovate with novel applications for grains and pulses. Together and individually, grains and pulses deliver ingredients that can be used to meet growing consumer demands for foods that are gluten-free, vegan, and whole grain; have a low glycemic index; and offer plant-based proteins. Pulses deliver both protein and fiber—two macronutrients that health-conscious consumers are seeking from their diets. Sprouting enhances the bioavailability of nutrients in grains, and as a result, sprouted grains are also gaining in popularity with wellness-minded consumers. Dietary guidance, such as that provided in the Mediterranean and DASH diets, frequently promotes consumption of pulses, whole grains, and fiber.

Individuals seeking a gluten-free diet still want the traditional grain experience from their foods. Early offerings in gluten-free products were starch based and had poor nutritional content. Today, improvements in pulse flour milling have opened up alternative paths to formulating gluten-free products, resulting in more nutritious and tasty products.

The role of the gut microbiota in human health is an area of increasing research among medical and nutrition scientists. Two articles in this issue focus on gut health: a feature article on pea hull fiber (W. J. Dahl) and a research article on the effect of wheat bran on intestinal disease symptoms experienced by individuals with chronic enteric pathogen infections (A. M. Kiszonas).

Both population growth and climate change pose challenges for growing grains and pulses. Expanding production of key crops (e.g., wheat, corn, rice) will be needed to meet projected population growth in the coming decades at a time when weather and climate events will stress—and even devastate—crops. For example, higher global and regional temperatures will not only affect the time of year when crops mature, but will also result in damage to plants caused by heat stress. Research funding will continue to be critical to address these issues.

Although 2016 was declared the International Year of Pulses, the pulse story is not over (J. Hunter and T. Der). Larger societal trends are likely to fuel continued interest in grains and pulses—alone and together. When blended, grains and pulses can improve the taste, functionality, and nutrition of food products. Pulses and grains provide complementary amino acids that in combination make complete proteins, which in turn increases protein quality and opportunities for making high-protein claims for foods made with plant-based proteins. Inroads into how both grains and pulses are processed have resulted in more components of various crops being used in food products. These advances can both deliver cost savings and improve the sustainability of production practices.

In this issue, you will find new insights on the health benefits of grains and pulses in four articles: pea hull fiber (W. J. Dahl), navy bean flour (B. L. Luhovyy et. al.), wheat bran (A. M. Kiszonas), and sprouted grains (J. Pagand et. al.). An article on South African wheat (R. Lindeque et. al.) highlights the influence of environment on the breadmaking quality of wheat. In addition, the AACCI Approved Methods Technical Committee has released its report on "Methods for Determining the Water Holding Capacity of Pulse Flours and Their Protein Materials." This report is timely, as there is an increasing need for standardized methods for testing pulse ingredients rather than relying on methods developed for wheat flour. This issue also includes the latest installment in the "CIMMYT Series on Carbohydrates, Wheat, Grains, and Health," which explores the importance of wheat-based foods in global and regional diets and how these are being affected by population growth and climate change.

With all that is developing and what's to come, perhaps we will witness a "decade of pulses and grains," rather than just a year.

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