

# From Seed to Consumer: Defining the Strategic Research Plan

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## ABSTRACT SUMMARY

Research in whole grains is currently conducted at the regional level and across various scientific disciplines. Advancing the research agenda and identifying gaps in research requires the development of a strategic approach that addresses the entire supply chain. By developing and implementing a global strategic research agenda, the whole grain community can reduce duplication, focus resources on targeted projects, and increase the applicability to the global end user. Key to this process are collaboration and embracing systems as opposed to single discipline approaches. Broad thematic areas that can serve as focal points include consumer behavior, health benefits, reformulation and new product development, and breeding whole grains for health related traits. To move from theory into practice requires innovative partnerships related to funding, an action focus, and leadership on a global as opposed to regional level.

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## Introduction

Research is being conducted around the world to enhance understanding of the role of whole grains (WG) in human health. A collaborative effort is required to address the current state of WG research, identify gaps, and initiate the next steps to integrate these research initiatives into the supply chain to improve availability, quality, and likability of WG for consumers. The grains community could benefit from a strategic research plan that begins from a vision of the whole supply chain. This plan could reduce duplication, create targeted research projects, and increase application of research to the end user worldwide. Connections between research and decision points set the stage for an action-focused approach to increased WG adoption.

## Advancing Into Action

In order to advance a WG agenda, a new way of working together across the globe is desirable. A commitment to open innovation (3) as well as the ability to move beyond conventional linear thinking (5) can provide the foundation for potential applications from other industries to the food-health challenge. The recognition that a singular focus can lead to spectacular failure (2) leads engaged WG community members to seek

insights that go beyond value measured in dollars.

## Thematic Approach

The thematic approach to WG research facilitates a supply chain approach and moves beyond the traditional single discipline research projects that seek connections post-research. Four themes—changing consumer behavior and influencing the food environment, examining the health benefits of WG, reformulation and new product development, and breeding for health—provide broad scope and measurable endpoints.

The end user—the next link in the supply chain—is the immediate target for most WG researchers. When the target is broadened to focus on the consumer—the person consuming the WG at the end of the research pipeline—it is imperative to understand the motivators that result in the visible action to consume or not consume WG (6). Recognition that taste preferences develop early in life can lead to improved adoption of WG especially by children. The recognition that taste and texture, more so than longer term health benefits, are a key driver for WG consumption should direct focused research plans that incorporate expertise from raw material suppliers and processors through to retail delivery.

The health benefits of WG are recognized yet not well elucidated. At times, the mixed messages about the health benefits of WG confuse consumers and policy makers alike (2). Examination of the contributing factors towards this confusion indicates that the lack of precise material descriptions in peer reviewed journals is a key area that can be addressed through global agreement on a common approach. Biomarkers that move beyond descriptive into the analytic are proposed as one way to lessen confusion and advance the science underlying the health benefits of WG.

Producing healthful WG without any way to include them into products desired by consumers does not encourage increased adoption. “Tastes great and is good for me” is an oft heard request that requires an impressive amount of technological innovation that is predicated on new partnerships employing innovative business models to deliver (4). Issues related to trust have hampered increased industry sponsorship of research in WG, but models of engagement can be identified that address the need for independent research while meeting a marketplace objective.

At the very foundation of healthy product development and adoption lies the requirement for suitable raw materials with global application and flexibility to meet the taste and texture

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preferences of the local consuming population. To date, breeders of WG species have focused on productivity traits as opposed to directing variety development toward health-related traits (1). Oat provides a model crop for targeting productivity as well as health-related traits like fiber quantity and quality. The array of tools available to the plant breeder, including yield and pest resistant trait identification, could be applied to health-related endpoints. The critical role of wheat productivity in global food security must be balanced with the desire to improve nutritional quality. Mechanisms for value capture at the processing, food production, and distribution levels should recognize the need to ensure the producer of the raw material remains engaged. Of emerging importance is determining the role of processing in maintaining nutritional qualities.

### **From Theory to Practice**

WG research requires funding. Establishing a global agenda

requires all members of the WG community to re-examine how research is funded and how innovative collaborations across the globe can be supported. The concept of “global priorities delivered regionally” is one that allows multidisciplinary, multijurisdictional collaboration within the realities of local funding support. Research in WG is being done in many jurisdictions; the time is right to leverage these existing efforts and build towards a collaborative research agenda that addresses the entire supply chain from seed to consumer.

### **References**

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