

Dietary Guidelines: An Integrated Approach to Whole Grains

April 10, 2007

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Topics of Interest

- Approaches to whole grains in school foodservice
- Linking the whole grain supply chain
- Training young scientists and health professionals

From Theory to Practice

Bridging the GAP

Policy / Regulatory



Definition

Identification

Benefits

Consumption

Production

Consumers



Ways to Identify

- Percentage and gram labeling
- Health claim
- Ingredient list
- Symbols

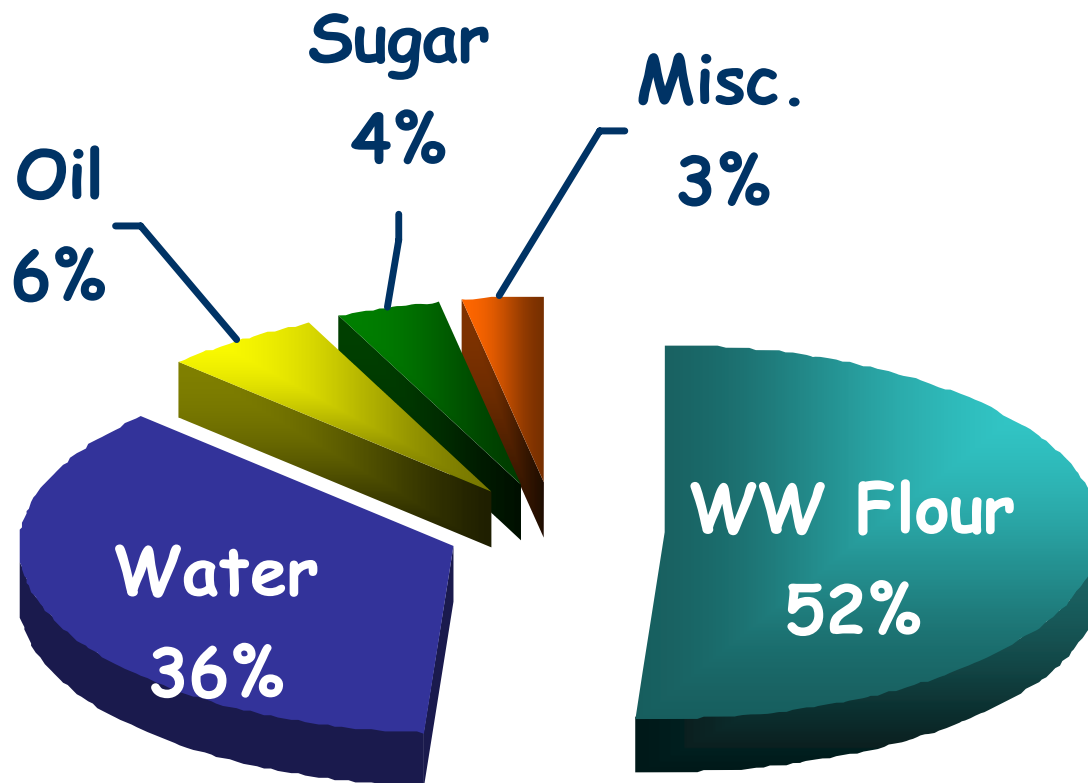


School Foodservice Personnel

Participants used 3 general categories to identify a whole grain food

- Descriptor
 - “Intact” “Natural” “Fiber” “Less processed”
- % Whole grain
 - “50% or more” “51%” “ If it’s 100% wheat”
- Label / Ingredients
 - “We look at the nutrition label” “The first things listed are the main ingredient”

Whole Grain Dinner Roll



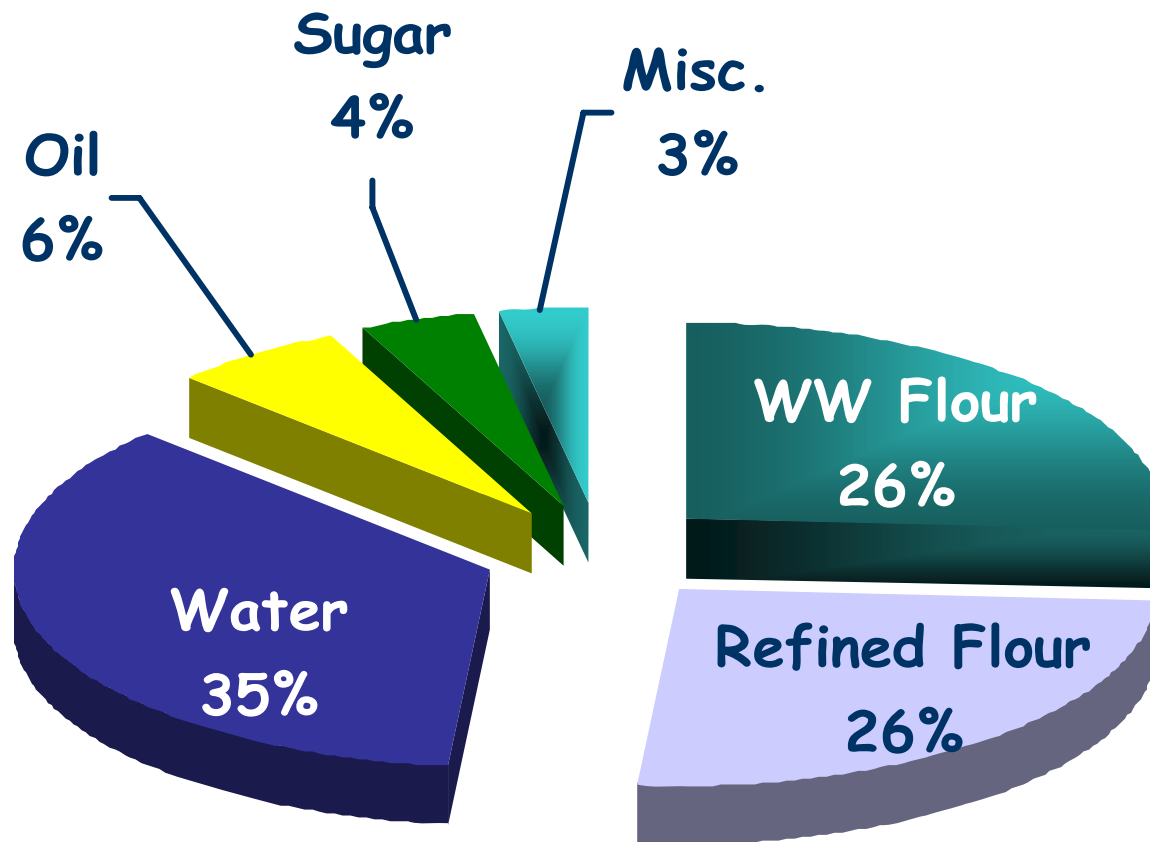
16 grams
whole wheat
flour per 30
gram roll

RESULT:
1 roll is one
whole grain
ounce
equivalent

One whole grain serving = 16 grams whole grain



Partial Whole Grain Dinner Roll



8 grams
whole wheat
flour per 30
gram roll

RESULT:
1 roll is 1/2
whole grain
ounce
equivalent

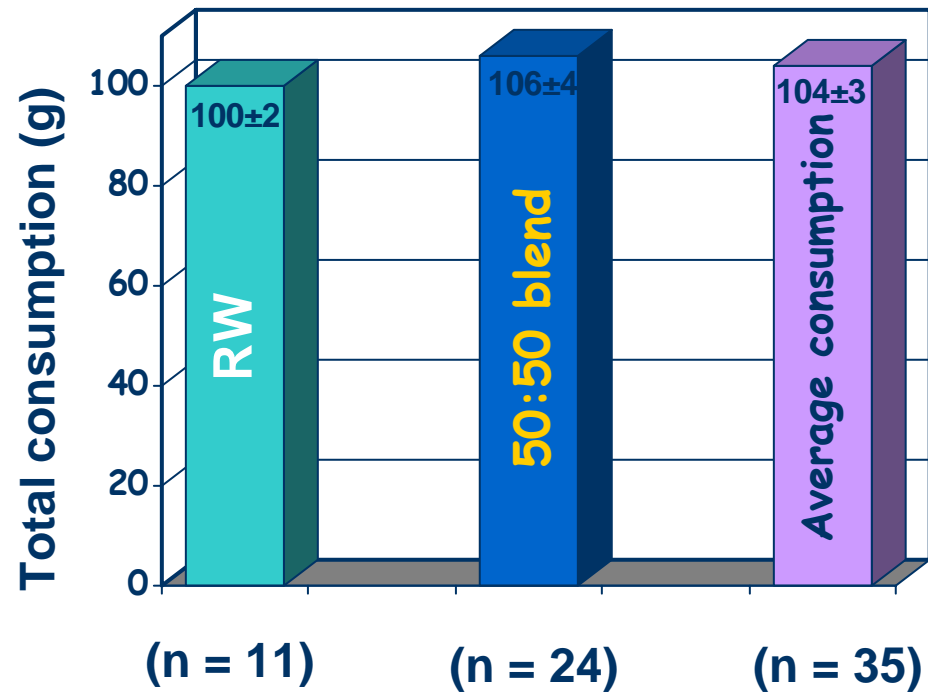
Partial whole grain serving = 8 grams whole grain

Acceptability Solutions

- Use partial whole grain products as transition foods
- Use incremental increases in whole grains in popular grain-based foods (pizza crust, tortillas, pasta, buns)
- Both solutions improve sensory characteristics
 - Milder flavor
 - Lighter color and texture
 - More familiar

Pizza Intake: Refined vs 50 / 50 Blend

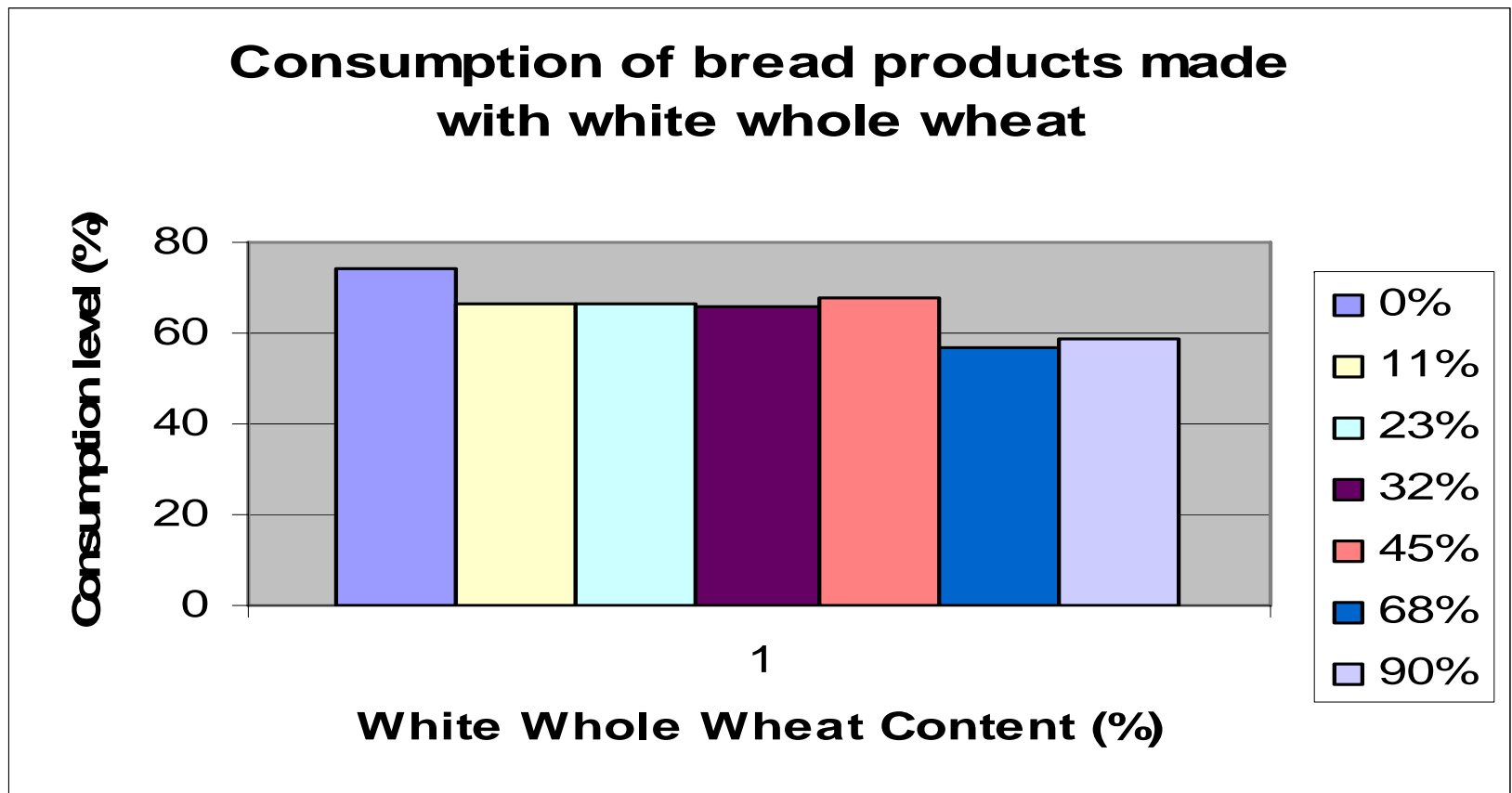
Mean \pm SE



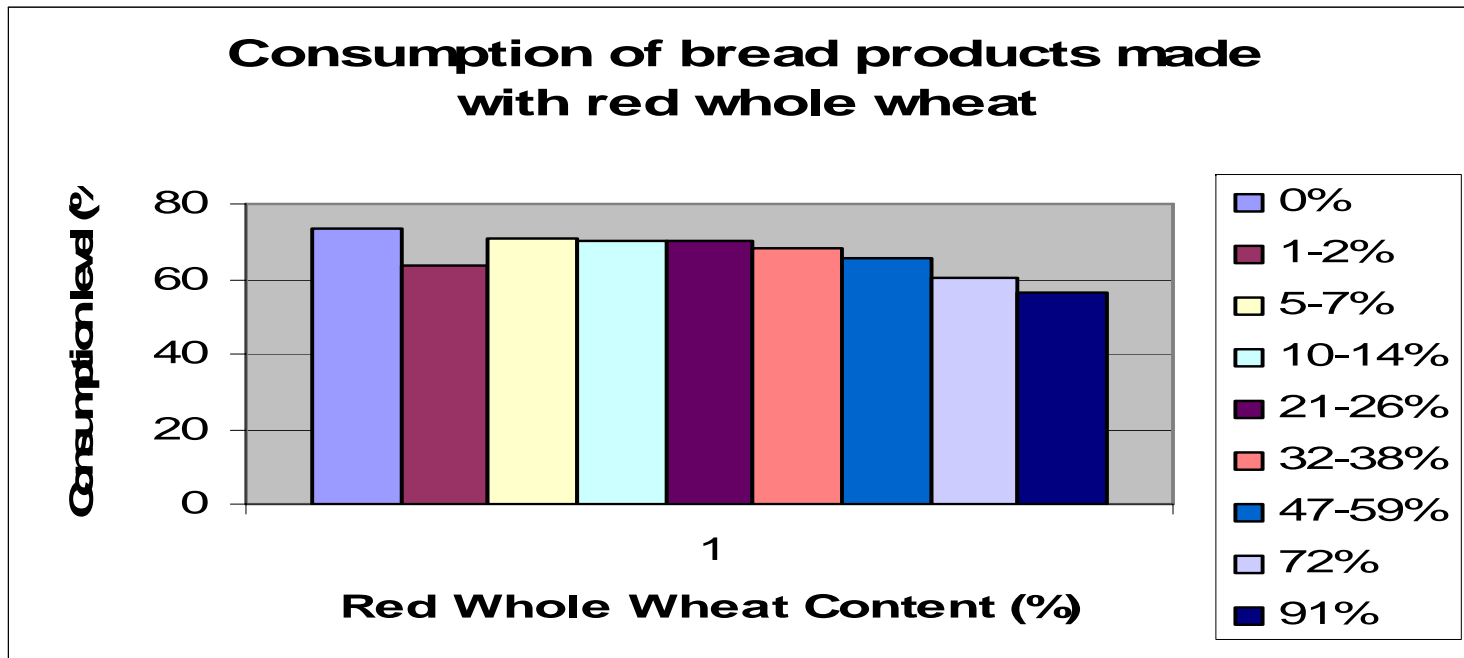
Purpose: Gradual Introduction

- Examine the effectiveness of gradually increasing levels of whole wheat flour in sandwich buns and dinner rolls served in school meals over the course of a school year
- Increase whole grain intake in children

Results: Gradual Introduction



Results: Gradual Introduction



An Integrated Approach to Whole Grains and Health

Sectors (Collaboration)

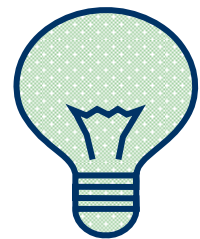
- Government
- Academia
- Industry
- Trade groups
- Health advocates
- Media
- Activist groups

Supply Chain

- **Plant breeder (genetics)**
- Agronomist
- Farmer
- Distributor
- Miller
- Processor
- Baker
- Retailer
- Foodservice
- Food science
- Biological science
- Behavioral science
- Social science
- Medicine
- Health care
- Policy / regulatory
- Economics
- Technology
- Marketing
- Education
- Environment
- Media
- **Consumer**

Grains Research Institute

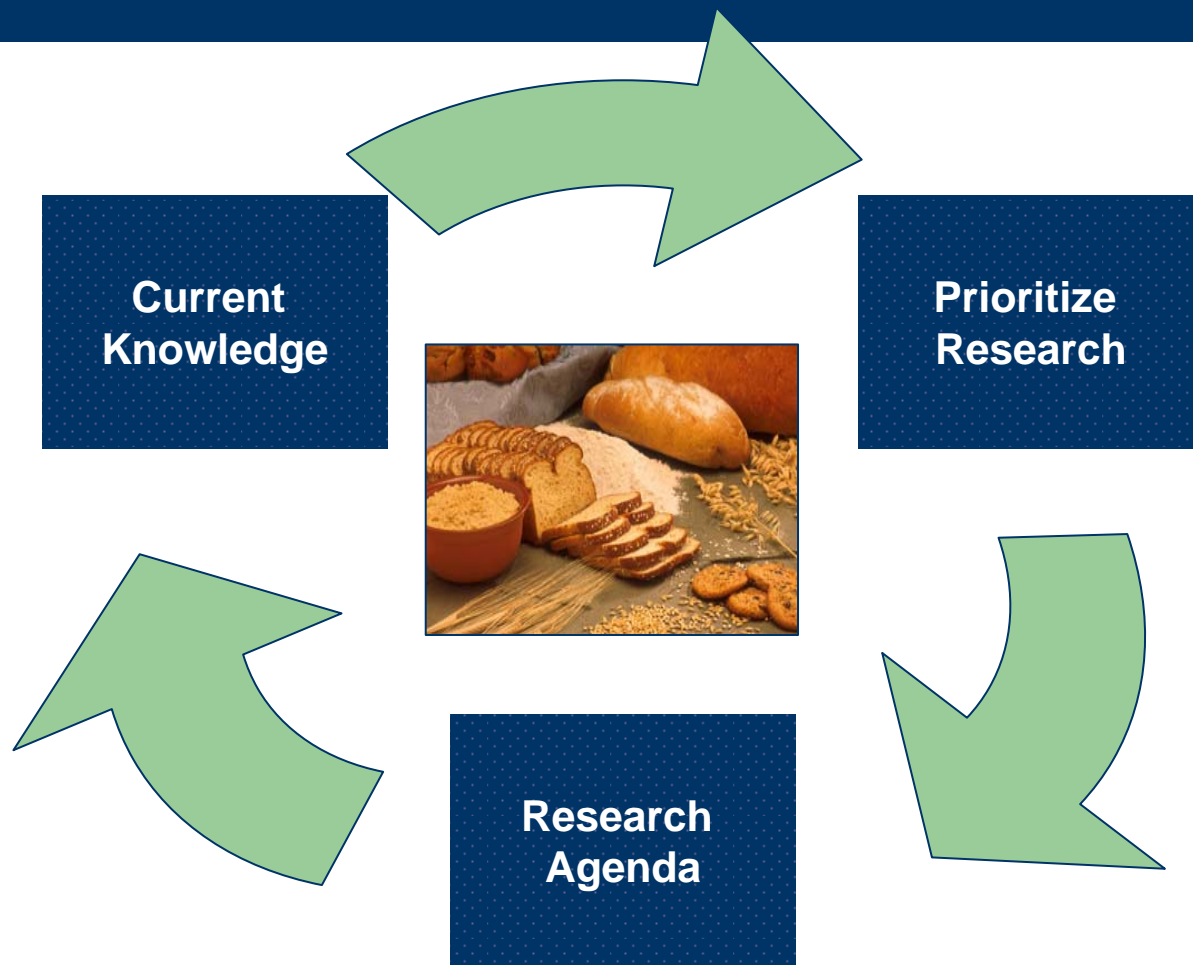
- **University of Minnesota**
- ***Institute for Grains and Health Research***
- **In Partnership with:**
 - ***Cornell University, Ithaca, NY***
 - ***Kansas State University, KS***
 - ***University of Manitoba, Canada***



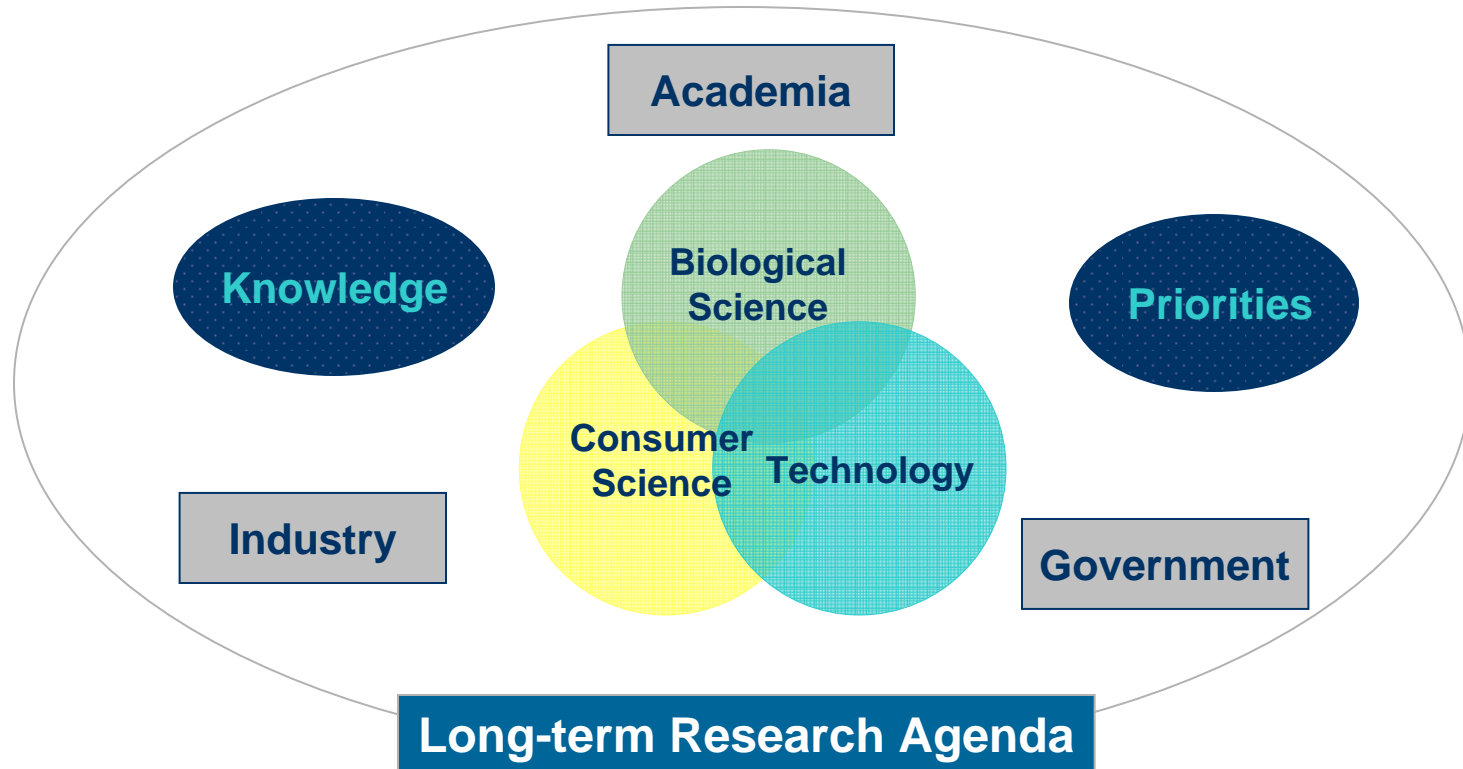
Grains & Health Institute

- Purpose
 - To increase the consumption of grains/grain products to enhance the health of the population.
- Mission
 - To improve the health of the population through basic, applied and translational research of grains/grain components.
- Approach
 - Create Inter-institutional Center/Collaborative to support research to enhance the knowledge and use of healthful components of grains in foods.
 - Research funded through grants/contracts carried out collaboratively to maximize research efforts, speed of discovery and acceptance of results.

Continuous Whole Grain Cycle



Collaborative Research Model



Grains, Whole Grains & Functional Parts

BIOLOGY, CONSUMER BEHAVIOR,
TECHNOLOGY, GENETICS

CONSUMER

Health
Messages

Dietary
Choice

Grain
Consumption

Enhanced
Health

Enhanced
Availability

- Conduct clinical research to validate nutritional drivers for each illness.
- Validate epidemiologic findings and determine composition and efficacy for each grain and each illness.
- Characterize sensory attributes, id barriers to consumption and determine requirements for behavioral change.
- Identify process requirements for bioavailability of phytonutrients and desired textural characteristics.
- Modify grain genetics to increase availability of functional components and resolve cost issues.

INDUSTRY

Health
Claims

Efficacious
Grains &
Composition

Enhanced
Consumer
Appeal

Enhanced
Bioavailability

Superior Grain
Products

Summary

- Understand grains throughout the supply chain.
- Prioritize and leverage grains research, technology and product innovation.
- Deliver grain products that meet the diverse consumer demand for taste, health and wellness.