U.S. Department of Agriculture

Agricultural Outlook Forum 2005

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GENERAL MILLS: COMMITTED TO WHOLE GRAIN

Susan J. Crockett, Ph.D., R.D.
Senior Director of Health and Nutrition
General Mills: Committed To Whole Grain

Susan J. Crockett, Ph. D., R.D.
Senior Director of Health and Nutrition
ALL General Mills Big G Cereals Are Now Made with Whole Grain!

Look For This Whole Grain On All Of Our Brands
General Mills Commitment to Whole Grains

- 1924: General Mills introduces Whole Grain Wheaties
- 1941: General Mills introduces Whole Grain Cheerios (now Cheerios)
- 1961: General Mills introduces Whole Grain Total
- 1980’s - 1990’s: General Mills supports Whole Grain research & education
- 1999: General Mills submits and receives FDA approval for a Whole Grain health claim

All General Mills Big G cereals are made with Whole Grain since 2005.
Whole Grains are a Health Focus

2005 Dietary Guidelines Report
Includes Recommendations for Whole Grains

“Consuming at least three servings of whole grains (equal to 3 ounces) per day can reduce the risk of diabetes and coronary heart disease and may help with weight maintenance. Thus, daily intake of three or more servings of whole grains per day is recommended ….”
Whole Grains are a Health Focus

USDA recently issued guidance to encourage increasing the offerings of Whole Grains in school meal programs in response to:

- Congress’ Provision in Child Nutrition and WIC Reauthorization Act of 2004
- Recommendations in current and revised Dietary Guidelines for Americans.
Americans are Missing Out

9 out of 10 Americans are **NOT** getting the recommended 3 servings of whole grains each day!

**Not Getting Enough Whole Grain**

**Getting the Recommended 3 Servings of Whole Grain/Day**

NHANES 1999-02, Pyramids Data Set, Version 2
### Major Sources of Whole Grain in The American Diet

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain Based Snacks</td>
<td>41%</td>
</tr>
<tr>
<td>Ready-to-Eat Cereal *</td>
<td>23%</td>
</tr>
<tr>
<td>Yeast Breads</td>
<td>16%</td>
</tr>
<tr>
<td>Hot Cereal</td>
<td>11%</td>
</tr>
<tr>
<td>Quick Breads</td>
<td>3%</td>
</tr>
<tr>
<td>Rice &amp; Pasta</td>
<td>3%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>3%</td>
</tr>
</tbody>
</table>

*RTE Cereal is main source of whole grain for children

NHANES 1999-02, Pyramids Data Set, Version 2
Current Consumption of Whole Grain is Low

- Americans consume less than 1 serving per day of whole grain
- Only 2.5% of total energy intake is from whole grain foods
Whole Grain Confusion

Consumers **Think** They’re Already Getting Enough Whole Grain

71% of consumers think they’re getting enough
Consumers Say They Want Whole Grain

71% of consumers claim they make “some” effort to consume whole grains

Gallup, 2001
Why Are Consumers Missing Out???

Whole Grain Confusion!!
Consumers Know Whole Grains are Healthy

Consumers generally view whole grains as “healthy/good for you.”

Whole Grain is the #5 “food eaten to reduce risk of disease”

1. Orange juice (63%)
2. Broccoli (61%),
3. Fish (59%)
4. Tomato products (59%)
5. Whole Grain (58%)

Pirro Research, 1997; WG Event Platform Exploratory 2000

Health Focus, 2003
Consumers Mistakenly Identify Foods as “Whole Grain”

- **80%** of consumers believe that “many cereals provide good and/or excellent sources of whole grains”

Consumers have a hard time identifying whole grain cereals and often mistakenly assume all or most cereals are whole grain.

- **90%** think they know what whole grain means
Consumer Definitions of Whole Grains are Rooted in Misperceptions

Consumers think whole grain is...

- Brown
- Only wheat
- Only fiber
- The same as multigrain
- Only found in adult foods/cereals
- Bad-tasting (if it’s sweet, it cannot be whole grain)

GMI Big G Health A&U, 2003; Pirro Research, 1997
How Do We Educate Consumers???
What Messages Motivate Consumers?

- Made with 100% whole grain.
- Provides an excellent source of whole grain.
- Made with whole grain.
- Provides a good source of whole grain.

- Significant source of whole grain.
- Rich in whole grain.
- Provides all the nutrients of the whole grain.
- Provides the goodness of whole grain.
- Whole grain in every bite.
- Made from a healthier grain - the whole grain.
- Whole grain. The better grain choice.
- Made from the entire grain.

GMI Consumer Research, 2003
Help Consumers Beat the Whole Grain Confusion!

Pique consumer interest and provide compelling messages for whole grain.

1. Health Benefits
2. Credible Sources
3. Bust the Myths

Consumer Whole Grain Understanding
Health Benefits of Whole Grains
What is a Whole Grain?

**Bran**
- “Outer shell” protects seed
  - Fiber
  - B Vitamins
  - Trace Minerals

**Germ**
- Nourishment for the seed
  - B Vitamins
  - Vitamin E
  - Trace Minerals
  - Phytochemicals

**Endosperm**
- Provides energy
  - Carbohydrate
  - Protein
  - Some B Vitamins
Whole Grains Have Benefits Beyond Fiber

- Traditional Nutrients, Vitamins, & Minerals
- Fiber
- Resistant Starch
- Lignan
- Antioxidants
- Plant Stanols and Sterols
- Phytate
- Inulin and Fructooligosaccharides
Synergy Between Components

The Whole Grain Bonus!

Whole is Greater Than the Sum of the Parts

Vitamins
Antioxidants
Carbohydrates
Phytonutrients
Minerals
Fiber
Whole Grain Link to Chronic Disease

- Cardiovascular Health
- Obesity
- Diabetes
- Cancer
- All-cause mortality
Whole Grains & Heart Disease: Epidemiological Studies

- **ARIC Study (15,792 men and women)** (Steffen et al., 2003)
  
  3 servings of whole grain food/day $\Rightarrow$ 28% ↓ risk of CAD

- **Iowa Women’s Health Study (34,000 women)** (Jacobs et al., 1999)
  
  ≥ 1 serving of whole grain food/day $\Rightarrow$ 30 - 36% ↓ risk of ischemic heart disease

- **Harvard Nurses’ Health Study (75,000 women)** (Liu et al., 1999)
  
  ≈ 3 servings of whole grain food/day $\Rightarrow$ 25% ↓ risk of coronary heart disease
Whole Grains & Obesity: Epidemiological Studies

- Harvard Nurses’ Health Study (75,000 women) (Liu et al., 2003)
  - Women who consumed **more whole grains** consistently **weighed less** than women who consumed fewer whole grains

  - At baseline, women in highest quintile of whole grain intake weighed less than did women in the lowest quintile
  - Increases in whole grain intake associated with significantly less weight gain over time
  - Refined grain intake was linked to increased risk of weight gain
Whole Grains & Obesity: Epidemiological Studies

- Continuing Survey of Food Intakes by Individuals, 1994-96
  - Whole grain intake inversely associated with BMI

<table>
<thead>
<tr>
<th></th>
<th>Lowest Whole Grain Intake</th>
<th>Highest Whole Grain Intake</th>
<th>P for trend</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMI Women</strong></td>
<td>26.4</td>
<td>24.2</td>
<td>.0005</td>
</tr>
<tr>
<td><strong>BMI Men</strong></td>
<td>26.3</td>
<td>25.7</td>
<td>.062</td>
</tr>
</tbody>
</table>

Whole Grains & Type 2 Diabetes: Epidemiological Studies

Data from the Iowa Women’s Health Study
- 21% risk reduction

Data from the Nurses’ Health Study
- 27% risk reduction

About 3 servings of whole grains daily

Liu, et al., AJPH, Sept. 2000
Whole Grains & Type 2 Diabetes: Prevention

Recommendations For Whole Grains

Included in 2002 American Diabetes Association evidence-based recommendations for diabetes prevention

Liu et al., Am J Public Health 90:1409, 2000
Fung et al., Am J Clin Nutr 76:535, 2002
Salmeron et al., JAMA 277:472, 1997
Whole Grains & Cancer: Epidemiological Studies

• Gastrointestinal cancers
  - A meta-analysis of 40 studies (Jacobs et al., 1998)
    • 21 - 43% lower risk for cancer with high intakes of whole grains
  - Iowa Women’s Health Study (35,000 women)
    (Kasum, et al., 2002)
    • RR = 0.53 in the highest tertile of whole grains

• Hormone-dependent cancers
  - Research is preliminary
  - One meta-analysis showed a 10 - 40% risk reduction with the highest intake of whole grain food (Chatenoud et al., 1998)
Whole Grains & Total Mortality: Epidemiological Studies

Harvard Male Health Professionals (86,000)

1 or more serving/day of whole grain cereal (compared to none) → Mortality RR 0.83

Iowa Women’s Health Study (34,333)

3 or more servings/day of whole grain foods → Hazard RR 0.86

Conclusions: Whole Grains and Health

- **Cardiovascular Disease**
  - Magnitude of risk reduction 27-37% - larger than reductions in cholesterol alone

- **Obesity**
  - Higher intake of whole grains = lower BMI and lower risk of major weight gain
Conclusions: Whole Grains and Health

- **Diabetes**
  - 21 - 27% risk reduction eating 3 servings daily
  - Whole grain intakes associated with improved insulin sensitivity
  - Consumption of whole grains included in recommendations for diabetes prevention

- **Cancer**
  - Meta-analysis of GI cancers = 21 - 43% lower risk
  - Meta-analysis of hormone dependent cancers = 10 - 40% risk reduction

- **Total Mortality**
  - >1 serving/day inversely associated with total and CVD-specific mortality
Will the Whole Grain Please Stand Up?

Words like “multi-grain”, “100% wheat”, or “bran” may indicate important health benefits, but do not necessarily mean a product is whole grain.
Break Down Myths: Know the Facts

- Whole grain is more than fiber or bran.
- Whole grain comes from a variety of grains (oats, rice, corn).
- Processed foods (cereals, crackers) can still be whole grain.
  - Not all whole grains provide a “nutty” flavor and texture to foods.
- Color is not a good indication of whole grain.
  - Some whole grain foods are not brown.
Current Ways to Find Whole Grain Foods

Look for:

1. The word “whole” before the first or second ingredient in the ingredient listings. For example, “whole wheat” or “whole oats.”
Current Ways to Find Whole Grain Foods

Look for:

2. FDA-Authorized Whole Grain Health Claim

Claim Criteria:

- Must include 51% whole grain flour by weight
Rationale Behind General Mills Citizen’s Petition on Whole Grain

- Give consumers a tool to accurately identify whole grain products
- Translates Dietary Recommendations to grocery aisle
- Levels based on USDA Food Guide Pyramid Servings and scientific data

USDA Whole Grain serving → 16g of Whole Grain flour per grain serving

Scientific Recommendation
3 servings/day for health and disease prevention

16g x 3 servings/d = 48g Whole Grain
WG Content Descriptors for “Good” and “Excellent” Source

**Excellent source** = 16g or more = 1 WG serving

**Good source** = 8g or more = ½ WG serving

**Made with/ Contains** = 8g or more = ½ WG serving

Meets recommended 3 servings of WG
Consumers Look to Labels to Find Whole Grains

- 44% consider “whole grains” extremely important on labels
- 72% find content (good or excellent source) claims extremely or very important on labels

<table>
<thead>
<tr>
<th>Extremely/Very Important on Labels</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good source of calcium</td>
<td>46%</td>
</tr>
<tr>
<td>Whole grain</td>
<td>44%</td>
</tr>
<tr>
<td>Low in saturated fat</td>
<td>43%</td>
</tr>
<tr>
<td>Cholesterol free</td>
<td>41%</td>
</tr>
<tr>
<td>Good source of antioxidants</td>
<td>39%</td>
</tr>
<tr>
<td>Low fat</td>
<td>39%</td>
</tr>
<tr>
<td>High fiber</td>
<td>39%</td>
</tr>
<tr>
<td>Fat free</td>
<td>38%</td>
</tr>
<tr>
<td>Low calorie</td>
<td>35%</td>
</tr>
<tr>
<td>Lower in sugar</td>
<td>35%</td>
</tr>
<tr>
<td>Sugar free</td>
<td>32%</td>
</tr>
<tr>
<td>Low sodium</td>
<td>32%</td>
</tr>
<tr>
<td>High protein</td>
<td>30%</td>
</tr>
<tr>
<td>Low carbohydrate</td>
<td>26%</td>
</tr>
</tbody>
</table>

GMI Consumer Research, 2003
Whole Grains Vary in Fiber Content

Whole grain does not mean high fiber

<table>
<thead>
<tr>
<th>Type of Grain (100g)</th>
<th>Fiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole wheat</td>
<td>12.2g</td>
</tr>
<tr>
<td>Whole oats</td>
<td>10.3g</td>
</tr>
<tr>
<td>Whole corn meal</td>
<td>7.3g</td>
</tr>
<tr>
<td>Brown rice</td>
<td>1.8g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Food*</th>
<th>Serving</th>
<th>Fiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown rice</td>
<td>30g</td>
<td>0.5g</td>
</tr>
<tr>
<td>Whole wheat bread</td>
<td>50g</td>
<td>3-4g</td>
</tr>
<tr>
<td>Corn Chips</td>
<td>30g</td>
<td>1g</td>
</tr>
<tr>
<td>Whole grain cereal</td>
<td>30g</td>
<td>3g</td>
</tr>
<tr>
<td></td>
<td>55g</td>
<td>4-5g</td>
</tr>
</tbody>
</table>

*100% of grain in food is whole grain

Source: USDA National Nutrient Database for Standard Reference
Whole Grain is **More Than Just Fiber**

- Fiber containing foods like fruits, vegetables and grains can help reduce the risk of chronic disease.
- Fiber is one of many functional components of whole grain.
- The health benefits of whole grain remain, even after controlling for the effects of fiber.
General Mills is Making Whole Grain a Priority

ALL General Mills Big G cereals are a “Good” or “Excellent” source of Whole Grain.
Are you getting enough whole grain in your diet? Chances are, you’re not. Recent studies show nine out of 10 Americans fall short of getting the recommended three servings of whole grain each day.

Whole grain offers a host of health benefits. Research shows that people who consume diets rich in whole grain tend to have a healthier body weight than those who don’t. Additionally, as part of a healthy diet, whole grain foods may reduce the risk of some cancers and heart disease.

There are many convenient sources of whole grain, like ready-to-eat breakfast cereals. General Mills, for example, now makes all its cereals with whole grain, making it easier than ever to find whole grain. When looking for whole grain foods, first check the ingredient list. For example, look for “whole wheat,” “whole grain corn,” or “brown rice.” Start getting more whole grain today!
Print, TV, and Internet Ads Ran in January

Studies show whole grain is good for the heart

Heart disease is the number one killer of American adults, according to the American Heart Association. But experts say there’s good news: You can take charge of your heart health by eating more whole grain.

The 2005 Dietary Guidelines Advisory Committee found that consuming at least three servings of whole grains per day can reduce the risk of coronary heart disease. Whole grain contains vitamins, minerals, antioxidants and fiber, as well as hundreds of phytonutrients. These compounds work together to play an important role in helping to reduce the risk of heart disease.
Bringing Whole Grain and Great Taste to Consumers!

Look For This Whole Grain On All Of Our Brands
Thank you!
WG Studies Which Controlled for the Effects of Dietary Fiber


Studies Not Controlling for the Effect of Dietary Fiber


