

Cooking with Whole Wheat

Low-Fat
High-Fiber
Great-Tasting

W

heat (*Triticum aestivum*) is a member of the grass family (*Gramineae*) and one of eight cereal grains known to humans. It produces a dry, one-seeded fruit — a caryopsis — that is commonly called the wheat grain, kernel, or berry.

Neither the geographical, historical, nor biological origin of wheat is known; although, like all grains, it began as a wild grass. Existing evidence points to the ancient civilizations of the Fertile Crescent, the area of southwest Asia that arches from between the upper reaches of Tigris and Euphrates rivers toward the Mediterranean Sea. Most ancient languages mention wheat, and the fact that it has been found in prehistoric habitations of people as early as 6,700 B.C., notably in the earliest Swiss lake dwellings, is proof of its antiquity. Wheat was also cultivated in China in 3,000 B.C. and was the chief crop in ancient Egypt and Palestine.

Wheat is classified based on the color and hardness of the kernel and the growing season of the plant. Six classes of wheat are grown in the world, and the United States is the only country that has the geographic diversity to grow all six. They are: hard red winter, hard red spring, soft red winter, soft white, hard white and durum.

Winter wheats are capable of withstanding the relatively mild winters of the southern Great Plains, southeastern United States and Pacific Northwest. They are planted in fall, go into dormancy in the winter, begin growing again in the spring, and are harvested in late spring and early summer. On the other hand, spring wheats thrive in the relatively mild summers of the northern United States.

Hardness of wheat refers to the protein content in the endosperm. Hard wheats — which contain more of the gluten-forming proteins necessary for yeast-bread production — are used primarily in bread products such as bread, bagels, buns, certain types of noodles, and flatbreads such as tortillas, pitas and Arabic bread. Soft wheats — which have smaller amounts of gluten-forming proteins — are used primarily for tender cakes, cookies, pastries, pancakes, flatbreads and certain types of noodles. Durum is used primarily for pasta, couscous and noodles. Any of these types of wheat can be prepared and eaten whole or ground into whole wheat flour.

The kernel of wheat consists of three parts — the bran, or protective outer seed coat; the germ, which would sprout into a new plant if the seed were to be planted; and the endosperm, which provides energy and nutrients for the very young wheat plant until a root system can be established to garner nutrients from the soil. For humans, this endosperm is also the source of white flour, and the largest recommended source of energy for the diet. In commercial flour production, white flour is achieved by first grinding, then sifting away the bran and germ. Whole wheat flour is obtained by then recombining the three components of the wheat kernel, although commercially milled whole wheat flours sometimes do not contain the germ.

Nutrition

With the enrichment of white flour in the United States, the difference in nutritive values between whole wheat and white flour products narrows. Both are rich in iron, B vitamins and complex carbohydrates, commonly known as starches. Complex carbohydrates are the preferred source of calories for the body because they have less than half the calories of fat (four vs. nine) and provide long-term energy for the body. This is one reason the Food Guide Pyramid recommends six to 11 servings of grain foods daily.

Effective January 1, 1998, all white flour and white flour products will be enriched with folic acid, another B vitamin that helps prevent neural tube defects in newborn babies. Evidence also points to the possibility that folic acid may help protect against colorectal and lung cancer. Whole wheat flour already provides folic acid, as well as small amounts of additional B vitamins and trace minerals and protein.

Bleaching flour does not affect nutritive value. Organic wheat products also do not vary nutritionally from non-organic products, but those concerned about the use of fertilizers and pesticides in the planting and storing of wheat need to ask careful questions, because there are no national standards of identity for organic products.

The nutritional advantage of cooking or baking with whole wheat kernels, cracked wheat, bulgur, rolled wheat or whole wheat flour centers primarily on fiber, the indigestible part of plant foods that provides almost no calories or nutrients, but which serves the very important function of moving food through the intestines. With the germ and bran left intact, whole wheat foods are a good source of dietary fiber. There are two types of fiber: insoluble and soluble.

Insoluble fiber, the type that does not dissolve in water, is found in wheat bran, other whole grains; dried peas, beans and legumes; and fruits and vegetables. Insoluble fiber may effectively reduce the risk of colon cancer, and, according to recent research, may help prevent breast cancer. It also aids in weight control if high-fiber foods are substituted for high-fat, high-calorie foods. High-fiber foods take longer to chew and provide a feeling of fullness. In addition, insoluble fiber helps prevent constipation, relieve hemorrhoids and prevent diverticular disease by absorbing water and moving food more quickly through the intestines. It also prevents diarrhea by normalizing the stools.

Soluble fiber, the type that does dissolve in water, is found in legumes; the brans of various grains such as oat, rice, barley and corn; white flour products such as white bread, bagels, pasta, etc.; and some fruits and vegetables. When eaten as part of a low-fat diet, soluble fiber has been shown to help lower blood cholesterol, thus decreasing the risk of heart disease. It may also help control the blood sugar of people with diabetes and even reduce their insulin requirements. However, diabetics should follow a high-fiber diet only under medical supervision.

Research shows that Americans are achieving an average of only 12 grams of fiber each day. There is currently no Recommended Dietary Allowance (RDA) for fiber, but the American Dietetics Association recommends a daily dose of 20 to 35 grams. For children between the ages of 3 and 18, the American Health Foundation recommends using a simple formula: "age + 5 grams." This means that a 12-year-old child would need 17 grams of fiber each day. For Americans to get the needed amount, the American Dietetics Association recommends that at least three servings of the recommended six to 11 servings each day of grain-based foods should be in the form of whole grains.

Eating foods instead of just taking fiber supplements will help balance the digestion of the foods with the body's absorption of the nutrients in them. High-fiber supplements may cause too much fiber intake, preventing the intestines from absorbing nutrients. It is also important to drink adequate amounts of water — six to eight glasses daily. Fiber absorbs and holds water to add bulk and "sweep" out the intestines, so getting enough water is necessary to aid this process.

Food Guide Pyramid

The Food Guide Pyramid recommends six to 11 servings of grain-based foods because they are generally low in fat, high in complex carbohydrates (starches, the preferred source of energy for the body), and a good source of fiber, vitamins and minerals.

Increasing complex carbohydrates and fiber help decrease fat and calories in the diet. High-fiber, low-fat diets are important because they help reduce the risk of obesity, heart disease and certain types of cancer.

One serving of grains equals:

- 1 slice white or whole wheat bread (1 ounce or 28 grams)
- 1/2 hamburger or hot dog bun, pita, or English muffin
- 1/2 bagel or soft pretzel
- 1/2 cup cooked pasta, couscous, noodles, bulgur, barley or rice
- 1 ounce cold cereal (amounts vary; read label)
- 1/2 cup cooked cereal
- 1/2 ounce crackers, low-fat cookies or pretzels
- 1 small waffle or pancake
- 1 slice (1/8) of a 10-inch pizza
- 1/2 to 1 wheat or corn tortilla or wrap (1 ounce)

Storage & Cleaning

Because whole wheat kernels, cracked wheat, bulgur, rolled wheat and whole wheat flour contain the oil-rich germ, they will become rancid if stored too long at room temperature or warmer. To reduce rancidity and prevent insect problems, store these products in airtight containers in a cool (60°F or less), dry place. For best results, refrigerate for up to six months or freeze indefinitely. Before using refrigerated or frozen wheat and flour products in cooking, be sure to allow them to come to room temperature.

Wheat kernels should be bought at a relatively low moisture content (less than 14 percent). A local bulk bin or health food store or a local flour mill may be able to provide cleaned kernels for home grinding and cooking.

If none of these are available, check with a local grain elevator. To clean wheat purchased directly from a local elevator or other supplier, hand-cleaning the wheat can be done, but will be time-consuming. Instead, try purchasing or using at your local elevator a metal screen with an oblong hole size of 0.064 x $\frac{3}{8}$ -inch. This will remove fine dockage and shrunken and broken kernels. Additional cleaning using the elevator's dockage tester will further clean the wheat.

If storing large quantities of wheat for grinding, metal containers are the most effective. A clean garbage can with a secure lid will work. Store the garbage can on 2 x 4-inch slats so air can circulate around it. Do not set the storage container directly on cement because this may cause the container to sweat. A metal container may absorb the moisture and rust, ruining the container.

There are two ways to rid wheat of infection: dry ice and freezing. Both are effective in killing any infestation inside and outside the kernel. The dry ice method uses a 3-ounce piece of dry ice in the bottom of the container. Pour the wheat on top of the dry ice and let the ice evaporate up through the wheat. This drives out the oxygen necessary for insects to survive. Allow sufficient time for the dry ice before sealing the container. Feel the bottom to see if it is still cool or has become warm. If it is warm, the dry ice has evaporated. Each 100 pounds of wheat will require 8 ounces of dry ice. The use of dry ice should not hinder the sprouting process.

The next best alternative is freezing. If kernels are frozen thoroughly, infestation will be eliminated. To achieve a sanitary point, freezing should be done in small amounts. The suggested amount is one gallon of wheat kernels frozen for five to six days. This guarantees the penetration of cold air throughout the kernel. Be sure to check for moisture buildup before storing.

Cooking Tips

Whole Wheat Kernels

- Use only untreated wheat from the combine or commercially sold wheat berries.
- Rinse whole wheat kernels before cooking, but do not wash before grinding or milling.
- Presoaking wheat kernels overnight in the water it is to be cooked in will cut cooking time in half. Proportions should be 3 cups hot water to every 1 cup kernels. Salt may be used if desired, 1/4 to 1/2 teaspoon salt per each cup of wheat.
- Cook kernels 20 minutes if presoaked; 45 minutes if not. One cup wheat kernels equals 2 1/2 cups cooked, plump kernels.
- A slow cooker or crockpot will work well to cook whole wheat kernels. Just set on low and cook overnight (about 8 hours), stirring once during the first hour of cooking. Use 2 cups of wheat per 4 cups of water.
- To cook whole wheat kernels in the oven, preheat oven to 300°F. Boil 1 cup of wheat and 2 cups of water in a heavy saucepan for 5 minutes. Remove from heat, cover and place in the oven. Turn off oven heat and leave undisturbed for about 6 hours. It will yield about 3 cups cooked whole wheat kernels.
- Par-cooked or presoaked wheat kernels may be refrigerated for three to four days. Fully cooked wheat may be refrigerated for one week. Both may be frozen for up to six months.

- Cook a large amount of wheat and freeze the kernels in small portions to save time and energy. After cooking, just drain the cooked kernels well and place 1/2- to 1-cup portions in freezer containers. Thaw kernels by running hot tap water over them in a colander.

Whole Wheat Flour

- To correctly measure flour, first stir it, then lightly spoon it into a dry measuring cup and level off.
- Graham flour and whole wheat flour are the same thing and can be use interchangeably.
- A commercially baked product may use the term “whole wheat” on the packaging only if it is made with 100 percent whole wheat flour.
- Be sure to refrigerate or freeze whole wheat flour to prevent rancidity and for freshness in baked goods.
- Whole wheat flour can be used interchangeably with white flour in baked goods, although products may be slightly heavier. Add a small amount of additional liquid because the bran tends to absorb more water and dehydrate foods.
- In converting a recipe from white to whole wheat flour, experiment with a percentage of whole wheat flour if you find the resulting whole wheat product too heavy. A percentage of 25 to 75 percent whole wheat flour might be more acceptable.
- Buttermilk especially lightens whole wheat baked goods.
- One egg per 3 to 4 cups whole wheat flour in yeast breads will improve gluten strength.
- To create a lighter whole wheat bread, add 1/2 tablespoon of gluten and an equal amount of water per 1 cup of whole wheat flour.

Bulgur

■ Bulgur differs from cracked wheat in that it is pre-cooked. Made from white or red, hard or soft wheat, the kernels are boiled, dried, slightly scoured, then cracked and sifted for sizing. The result is par-cooked, cracked wheat that is a high-fiber convenience alternative to instant rice. It is commonly used in tabouli or other grain-based salads, but can also be used in soups, stews, breads or main dishes.

■ Do not rinse bulgur before using.

■ Bulgur can be either soaked or cooked to be edible. To soak, cover bulgur with hot liquid, stir and let stand, covered, 30 minutes or overnight (refrigerated).

■ When cooking bulgur, avoid lifting the lid. It needs no stirring.

■ Bulgur continues to swell after cooking if moisture is present. It more than doubles in volume, so be sure to use a large enough pan.

■ Soaked or cooked bulgur can be refrigerated or frozen in containers for later use. Simply thaw and use as desired.

Rolled Wheat

■ Rolled wheat is similar to other rolled grains in that it is first steamed and then rolled between two smooth rollers. The ensuing cooling process dries the flakes.

■ Rolled wheat can be used interchangeably with rolled oats.

■ When replacing rolled oats with rolled wheat, use less rolled wheat because it is heavier than oats. One pound of rolled oats equals 6 cups, whereas 1 pound of rolled wheat equals $4\frac{3}{4}$ cups.

Cracked Wheat

■ Cracked wheat can be purchased in the grocery store or ground in a blender. To grind in a blender, place about 2 cups of wheat in a glass one-quart blender jar (wheat might crack a plastic container) and process at high speed about 4 minutes or until all of the wheat is ground. Sift or sieve the cracked wheat, using the finer pieces in baking and the coarser pieces for breakfast cereals, pilafs and soups.

■ Presoak and/or cook crack wheat if using in baked goods, salads or casseroles. Using the same method as cooking whole wheat kernels, simmer 1 cup cracked wheat in 3 cups water for 15 to 20 minutes. Let stand 5 minutes before using. One cup of dry cracked wheat will yield about $2\frac{2}{3}$ cups cooked cracked wheat.

Recipes

100% Whole Wheat Bread

1 cup warm (110°-115°F) milk	6-7 cups whole wheat flour
2 packages active dry yeast	2 eggs
1 cup warm (110°-115°F) water	2 teaspoons salt
1/3 cup honey	1/4 cup shortening

Scald milk by heating until tiny bubbles form around edge of pan and milk reaches 180°F. Cool to desired temperature. Or, to save time, use 1/3 cup dry milk and enough warm water to make 1 cup of liquid.

In large mixing bowl, dissolve yeast in warm water. Beat in warm milk, honey, 3 cups flour and eggs. Beat 3 minutes on medium mixer speed. Cover bowl and let sponge rest 20 to 30 minutes.

Mix in salt and enough remaining flour to form a soft dough. If using a dough hook, add shortening and mix 10 minutes. If kneading by hand, knead 10 to 15 minutes, gradually kneading in the shortening until dough is smooth and elastic.

Place dough in a lightly greased bowl, turning once to coat. Let rise in a warm (80°F) place until doubled. Punch down and let rise again until doubled.

Punch down; divide in half. Let dough rest 10 minutes while greasing two 9 x 5-inch bread pans. Shape by rolling each half into a 14 x 7-inch rectangles. Starting with short side, roll up tightly, pinching edges and ends to seal. Place in pans, cover with a damp cloth, and let rise in a warm (90°F) place until doubled.

Bake in a preheated 400°F oven 10 minutes, then reduce heat to 375°F and bake 25 to 30 minutes more. Remove from pans and cool on wire racks.

Nutrients: One 1-ounce serving provides 105 calories, 4 g protein, 18 g carbohydrates, 3 g fiber, 3 g fat, 14 mg cholesterol and 143 mg sodium.

100% Whole Wheat Bread (Bread Machine)

Ingredients	1-Pound	1 1/2-Pound	2-Pound
Water, 80°F	1 cup	1 1/2 cups	1 3/4 cups
Nonfat dry milk	1 Tbsp.	1 1/2 Tbsps.	2 Tbsps.
Butter or margarine	1 Tbsp.	1 1/2 Tbsps.	2 Tbsps.
Honey	1 Tbsp.	1 1/2 Tbsps.	2 Tbsps.
Salt	1 tsp.	1 1/2 tsps.	1 3/4 tsps.
Whole wheat flour	2 1/4 cups	3 1/4 cups	4 1/4 cups
Wheat gluten	1 Tbsp.	1 1/2 Tbsps.	2 Tbsps.
Active dry yeast	1 1/4 tsp.	1 1/2 tsps.	2 1/4 tsps.
OR			1 pkg.

Bring all ingredients to room temperature before using. Measure ingredients accurately: with flour, stir it, spoon into a dry measuring cup and level off.

Place ingredients in the pan in the order specified in the instruction manual. Select the Whole Wheat/Wheat Cycle and Medium crust. If the machine does not have a Whole Wheat Cycle, compensate by using the Basic White Cycle, letting the machine operate through the first kneading cycle, then restarting it.

Check the consistency of the dough after 5 minutes into the kneading cycle. It should be in a moist soft ball. If the dough is too dry, add 1 tablespoon of liquid at a time. If it is too wet, add 1 tablespoon of flour at a time.

If the machine does not have a cooling cycle, remove bread from the pan and cool on a wire rack. The Delay Timer may be used.

Nutrients: One 1-ounce serving provides 71 calories, 3 g protein, 14 g carbohydrates, 1 g fat, 2 mg cholesterol, 2 g fiber and 143 mg sodium.

Wheat Berry Bread (Bread Machine)

<u>Ingredients</u>	<u>1-Pound</u>	<u>1½-Pound</u>
Water (75°-85°F)	1 cup	1½ cups
Powdered buttermilk	3 tablespoons	5 tablespoons
Honey	2 tablespoons	3 tablespoons
Whole wheat flour*	2 cups	3 cups
Bread flour	½ cup	¾ cup
Cooked wheat berries	¼ cup	½ cup
Vital wheat gluten	1 tablespoon	2 tablespoons
Salt	1 teaspoon	1½ teaspoons
Butter	1 tablespoon	1½ tablespoons
Bread machine yeast	1 teaspoon	1½ teaspoons

Add ingredients to bread machine pan in the order suggested by manufacturer. Recommended cycle: whole wheat cycle (longest setting) and light color setting, if available. Time bake feature may be used.

Nutrients: One 1-ounce serving provides 67 calories, 3 g protein, 13 g carbohydrates, 2 g dietary fiber, 1 g fat, 2 mg cholesterol and 113 mg sodium.

*For a milder flavor and golden color try white whole wheat flour and berries (kernels).

Recipe provided by Kansas "Festival of Breads" Champion, Steven Korthanke, Robinson, Kan.

Chapatis

4 cups whole wheat flour	1½ cups lukewarm water
2 teaspoons salt	(105°-115°F), divided
2 tablespoons oil, optional	

In a large bowl, combine flour and salt. Make a well in the center. Mix in 1 cup water, and, if desired, oil. Gradually add remaining ½ cup water, continuing to mix until flour absorbs water. Knead dough until smooth and elastic, 5 to 8 minutes. Do not add more flour. Cover with a damp cloth. Let rest 30 minutes, or refrigerate overnight. If refrigerated, let come to room temperature.

Divide into 16 equal pieces. Roll each into thin rounds, 6 to 7 inches in diameter. Using a light dusting of flour if necessary when rolling out. Do not stack.

Heat a griddle or skillet over medium-high heat. Place one chapati on the griddle and cook for about 1 minute. Flip chapati and cook for about 1 minute; flip again. Use a folded, dry dish cloth to press down the edges of the chapati as it rises and puffs up so that the bread cooks evenly. Bread should puff up and have an even distribution of brown spots.

Place on a clean dish towel and lightly brush top with butter, if desired. Keep chapatis warm on a baking sheet in a 250°F oven, loosely covered with foil. Serve warm. To eat, tear chapatis in pieces or use as a wrap — simply fill, roll and eat. Makes 16.

Nutrients: One chapati made without oil provides 102 calories, 4 g protein, 22 g carbohydrates, .5 g fat, 0 mg cholesterol, 3 g dietary fiber and 802 mg sodium.

Variation:

■ Use 3 cups whole wheat flour and 1 cup all-purpose flour.

Recipe provided by Brinda Govindarajan, India.

Pioneer Bread

1/2 cup yellow cornmeal	1 cup cool water
1/4 cup brown sugar	1 cup whole wheat flour
2 teaspoons salt	1/2 cup rye flour
1/4 cup vegetable oil	4-4 1/2 cups all-purpose or bread flour
1 cup boiling water	Additional cornmeal to sprinkle on baking sheet or loaves
2 packages active dry yeast	
1/2 cup lukewarm water (110°-115°F)	

In a large mixing bowl, combine cornmeal, brown sugar, salt and oil with 1 cup boiling water. Dissolve yeast in 1/2 cup lukewarm water. Add 1 cup cool water to cornmeal mixture, then add the softened yeast to the mixture.

Beat in whole wheat and rye flours, mixing well. Stir in enough white flour to make a soft dough. Turn dough out onto a lightly floured surface and knead until smooth and elastic, using only enough additional flour to handle the dough. Knead 10 to 12 minutes by hand or with a dough hook.

Place dough in a lightly greased bowl, turning once to coat. Cover and let rise in a warm place (90°F) until doubled in size, about 1 hour. Punch down dough and divide into 2 pieces. Shape each piece into a loaf and place in a greased 9 x 5-inch loaf pan. If shaping into round loaves, place in greased 9-inch pie plates or on cookie sheets. Cover and let rise until almost doubled.

Bake at 375°F for 35 to 40 minutes or until well-browned and the loaf sounds hollow when tapped. Remove loaves from pans after 5 minutes and cool on a wire rack. Makes 2 loaves.

Nutrients: One 1-ounce serving provides 103 calories, 3 g protein, 19 g carbohydrates, 2 g fat, 0 mg cholesterol, 1.5 g dietary fiber and 136 mg sodium.

Three-Grain Pilaf

1 tablespoon vegetable oil	4 cups hot water
1 cup dry bulgur	1/2 cup coarsely grated carrots
1/2 cup dry white long-grain rice*	1/2 cup chopped onions
1/2 cup dry pearled barley	1/2 cup sliced almonds, toasted (optional)
2 cubes or 2 tablespoons bouillon granules	

Add oil to wok or skillet and heat on medium-high. Add grains and saute 7 minutes, stirring occasionally.

Dissolve bouillon in hot water and stir into grains; add vegetables. Cover, reduce heat and simmer 25 to 30 minutes. Stir occasionally until liquid is absorbed and grains are tender.

Remove from heat, let stand 5 minutes and fluff with fork. Garnish with almonds. Makes 7 cups.

Nutrients: One cup (2 servings) provides 192 calories, 5 g protein, 39 g carbohydrates, 3 g fat, 0 mg cholesterol, 6 g dietary fiber and 33 mg sodium.

Variations:

- Season with black pepper or herbs.
- Add other vegetables such as chopped green pepper, red pepper, celery, peas or broccoli.

*Do not substitute minute or brown rice.

Wheat-Nut Pilaf

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| 1 tablespoon vegetable oil | 2 medium carrots, shredded |
| $\frac{3}{4}$ cup dry bulgur | $\frac{1}{4}$ cup chopped walnuts, pecans, cashews or almonds |
| 1 cup beef or chicken broth | |

In a heavy saucepan, heat oil, add bulgur, and saute 5 minutes, stirring occasionally.

Stir in broth and carrots; bring to a boil. Cover; simmer 15 minutes. Remove from heat; let stand covered 5 minutes. Fluff with a fork and stir in nuts just before serving. Serves 4.

Nutrients: Each serving provides 221 calories, 5 g protein, 31 g carbohydrates, 2.5 g dietary fiber, 9 g fat, 0 mg cholesterol and 200 mg sodium.

Tabouli

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| 1 cup dry bulgur | 1 bunch parsley, chopped |
| $1\frac{1}{2}$ cups water | Dressing |
| 1 bunch green onions, chopped | $\frac{1}{2}$ cup vegetable or olive oil |
| 1 green pepper, chopped | $\frac{1}{2}$ cup lemon juice |
| 1 cucumber, diced | 1 teaspoon salt |
| 3 tomatoes, seeded | |

Add bulgur to water and bring to boil; cover and simmer 15 minutes. Remove from heat; let stand covered 5 minutes. Mix vegetables with cooked bulgur. Combine oil, lemon juice, salt and bulgur; add to bulgur mixture. Refrigerate at least 2 hours before serving. Serves 7.

Nutrients: Each serving provides 256 Kcal, 3.5 g protein, 27 g carbohydrates, 3.5 g total dietary fiber, 16 g fat, 0 mg cholesterol, 294 mg sodium and 389 mg potassium.

Mexican Bulgur

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| 2 tablespoons butter | $\frac{3}{4}$ teaspoon ground cumin |
| 1 cup dry bulgur | 1 teaspoon chili powder |
| 1 medium onion, chopped | $2\frac{1}{4}$ cups beef broth or water |
| 1 cup thinly sliced celery | Salt and pepper to taste |
| $\frac{1}{2}$ red bell pepper, diced | |

Melt butter in skillet on medium heat. Add bulgur and chopped onion; cook until onion is clear and bulgur is golden. Stir in celery, diced pepper, cumin and chili powder; cook for 2 minutes.

Stir in beef broth and bring to a boil. Reduce heat and simmer for 15 minutes or until all liquid is absorbed. Season with salt and pepper. Serves 6.

Nutrients: Each serving provides 135 calories, 6 g protein, 21 g carbohydrates, 5 g dietary fiber, 5 g fat, 11 mg cholesterol and 757 mg sodium.

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Hearty Bulgur Salad

1 cup dry bulgur	10 radishes, diced
2 cups warm water	1/4 cup minced parsley
2 cups peeled, diced cucumber	1 teaspoon seasoned salt
1 1/2 cups diced tomatoes	1/4 teaspoon black pepper
1/2 cup thinly sliced green onions	1/3 cup lemon juice
1/2 cup diced green pepper	1 tablespoon minced fresh mint

Combine bulgur and water; let stand until bulgur is soft, about 20 minutes. Strain off excess liquid. In a large salad bowl, toss together all ingredients. Refrigerate until serving. Makes 6 cups.

Nutrients: One cup provides 102 calories, 4 g protein, 23 g carbohydrates, 1 g fat, 0 mg cholesterol, 6 g dietary fiber and 245 mg sodium.

Variation:

■ Black olives, drained kidney beans and corn may be added.

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Neat Wheat Joes

1 pound lean ground beef	1 teaspoon salt
3/4 cup chopped onion	1/4 teaspoon pepper
1 clove garlic, minced	1/2 teaspoon oregano
1/2 cup bulgur or cracked wheat	1 14 1/2-ounce can beef broth
2-3 teaspoons chili powder	1 15-ounce can tomato sauce

In large skillet, brown meat and drain well. Stir in remaining ingredients. Simmer, stirring occasionally, for about 1 hour or until bulgur is soft and mixture is thick.

Serve on a split bun. This mixture can also be used for tacos, taco salads and nachos. Makes 14 1/3-cup servings. Freezes well.

Nutrients: One 1/3-cup serving provides 121 calories, 11 g protein, 7 g carbohydrates, 6 g fat, 30 mg cholesterol, 2 g dietary fiber and 582 mg sodium.

Variation:

■ Substitute lean sausage, ground turkey or ground pork for part of the beef.

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Bulgur Vegetable Chili

4 cups tomato juice, boiling	$\frac{1}{4}$ teaspoon black pepper
$1\frac{1}{2}$ cup bulgur	$\frac{1}{8}$ teaspoon cayenne pepper
2 cloves garlic, minced	2 tablespoons oil
1 cup chopped onion	1 green bell pepper, chopped
2-3 stalks celery, chopped	$1\frac{1}{2}$ pounds fresh tomatoes OR
2-3 carrots, chopped	1 28-ounce can whole tomatoes
2 teaspoons cumin	1 15-ounce can kidney beans
2 teaspoons basil	1 15-ounce can tomato sauce
2 teaspoons chili powder	$\frac{1}{4}$ teaspoon salt
2 tablespoons lemon juice	

Combine boiling tomato juice and bulgur; cover. Soak 15 minutes and set aside.

Saute garlic, onions, celery, carrots, cumin, basil, chili powder, salt, and black and cayenne pepper in oil; add bell pepper. Simmer until tender.

Add tomatoes, beans, tomato sauce, and lemon juice and bulgur mixture; simmer just until heated through. Serve hot with bread sticks or bread and grated cheese. Makes 12 servings.

Nutrients: One serving provides: 167 calories, 6 g protein, 32 g carbohydrates, 7 g dietary fiber, 3 g fat, 0 mg cholesterol and 210 mg sodium.

Note: Chili is thick and may easily be thinned by simply adding more tomato juice to suit your tastes.

Glazed Meat Loaf or Meatballs

1 cup cooked cracked wheat or bulgur	Glaze
1 pound lean ground beef	$\frac{1}{2}$ teaspoon pepper
$\frac{1}{2}$ pound lean ground meat*	1 cup whole wheat bread crumbs
1 cup tomato juice or sauce	$\frac{1}{2}$ cup catsup
2 eggs	3 tablespoons molasses
	1 teaspoon prepared mustard

To cook wheat, add $\frac{1}{3}$ cup cracked wheat or bulgur to $\frac{2}{3}$ cup water and bring to a boil. Cover and simmer 15 minutes. Remove pan from heat; let stand covered 5 minutes.

Meanwhile, combine ingredients; mix well. Shape mixture in a 8 x 9-inch loaf pan or into $1\frac{1}{2}$ -inch balls. Spread glaze over top.

Bake loaf in slow 325°F oven for 1 hour, or meatballs for 30 to 35 minutes or until done. Makes 8 servings, or 24 meatballs.

Nutrients: One serving (3 meatballs made with 85 percent lean sausage or ground beef) provides 278 calories, 21 g protein, 15 g fat, 15 g carbohydrate, 1 g fiber, 130 mg cholesterol and 590 mg sodium.

Note: Sodium may be reduced by using ground meat instead of sausage and reduced sodium tomato juice and catsup.

*Examples include 85 percent lean beef, sausage, pork or turkey.

Wheat Angel Food Cake

1 $\frac{3}{4}$ cups egg whites (about 12-14 large eggs)	$\frac{3}{4}$ teaspoon salt
$\frac{1}{2}$ cup sifted cake flour	1 $\frac{1}{2}$ teaspoons cream of tartar
$\frac{1}{2}$ cup whole wheat flour	1 teaspoon vanilla
1 $\frac{1}{2}$ cups granulated sugar, divided	$\frac{1}{4}$ teaspoon nutmeg

In large bowl, let egg whites warm to room temperature, about 1 hour.

Sift cake flour, whole wheat flour and $\frac{3}{4}$ cup sugar together. Repeat process 3 times; set aside.

Beat whites, salt and cream of tartar at high speed until soft peaks form.

Add remaining $\frac{3}{4}$ cup sugar, a tablespoon at a time, to egg white mixture, beating well after each addition. Continue beating until stiff peaks form.

With rubber spatula, gently fold vanilla and nutmeg into whites until combined. Sift a quarter of the flour mixture over the egg whites. Gently fold in with 15 under-and-over strokes. Repeat, rotating bowl a quarter of a turn after each addition. After last addition, use 10 to 20 extra folding strokes. Flour mixture should be blended into egg whites.

Spread batter into ungreased 9- or 10-inch tube pan. Cut through batter with spatula to release air bubbles.

Bake on bottom rack of preheated 375°F for 30 to 40 minutes or until toothpick inserted in cake comes out clean. Invert pan over neck of bottle; let cool in pan completely. With spatula, carefully loosen cake from pan and remove. Serves 16.

Nutrients: One serving provides 105 calories, 3 g protein, 0 g fat, 2 g carbohydrate, .5 g fiber, 0 mg cholesterol and 166 mg sodium.

Whole Wheat Chocolate Sheet Cake

2 $\frac{1}{2}$ cups whole wheat flour	2 eggs, beaten
1 cup sugar	1 teaspoon vanilla extract
2 teaspoons cinnamon	<u>Icing</u>
$\frac{1}{4}$ cup unsweetened cocoa	$\frac{1}{4}$ cup unsweetened cocoa
1 cup water	$\frac{1}{2}$ cup butter or margarine
$\frac{1}{2}$ cup vegetable oil	$\frac{1}{3}$ cup milk
1 $\frac{1}{2}$ teaspoons baking soda	3 cups confectioners sugar
1 cup buttermilk	$\frac{1}{2}$ cup chopped nuts

In a large bowl, combine flour, sugar and cinnamon; stir well.

In a medium saucepan, combine cocoa, water and oil; bring to a boil. Add to dry ingredients and beat 1 minute at medium speed of an electric mixer.

Dissolve soda in buttermilk; stir into chocolate mixture. Add eggs and vanilla and mix an additional 2 minutes on low speed or until combined.

Pour into a greased and floured 15 x 10 x 1-inch pan. Bake in a preheated 350°F oven for 20 to 22 minutes or until a wooden pick inserted in the center comes out clean. Frost cake while still warm.

To make icing, bring the cocoa, butter and milk to a boil. Remove from heat and beat in sugar and nuts. Frost cake and let cake cool completely in pan on a wire rack. Serves 24.

Nutrients: One serving provides 208 calories, 3 g protein, 20 g carbohydrates, 2 g fiber, 5 g fat, 18 mg cholesterol and 96 mg sodium.

Whole Wheat Sugar Cookies

1 cup sugar	$\frac{1}{2}$ teaspoon baking soda
$\frac{1}{2}$ cup butter, softened	$\frac{1}{2}$ teaspoon salt
1 egg	$\frac{1}{2}$ teaspoon ground nutmeg
2 tablespoons milk	1 tablespoon grated orange peel
1 teaspoon vanilla extract	<u>Topping</u>
2 cups whole wheat flour	$\frac{1}{2}$ teaspoon cinnamon
1 teaspoon baking powder	2 teaspoons sugar

On medium speed of an electric mixer, cream sugar and butter until light and fluffy, about 5 minutes. Add egg, milk and vanilla; beat well.

Combine flour, baking powder, baking soda, salt, nutmeg and orange peel; gradually add to creamed mixture, mixing until blended.

In a small bowl, combine cinnamon and sugar topping. Shape dough into 1-inch balls. Flatten with the bottom of a dampened glass dipped in the cinnamon-sugar mixture. Place 2 inches apart on cookie sheets coated with cooking spray.

Bake in a preheated 375°F oven for 9 to 10 minutes or until lightly browned. Remove from pan and cool on wire racks.

Nutrients: One cookie provides 61 calories, 1 g protein, 9 g carbohydrates, 1 g fiber, 2 g fat, 5 mg cholesterol and 80 mg sodium.

Light-as-a-Feather Whole Wheat Pancakes

$1\frac{1}{3}$ cups whole wheat flour	1 egg
$1\frac{1}{2}$ teaspoons baking powder	$1\frac{1}{3}$ cups buttermilk
$\frac{1}{4}$ teaspoon salt	1 tablespoon brown sugar
$\frac{1}{4}$ teaspoon baking soda	1 tablespoon oil

In medium bowl, stir or sift dry ingredients together. Beat egg, buttermilk, brown sugar and oil together. Stir into dry ingredients just until moistened. Batter should be slightly lumpy.

Pour $\frac{1}{4}$ cup batter for each cake onto a well-seasoned hot griddle. Turn when bubbles appear on surface. Turn only once. Makes 12 4-inch pancakes.

Nutrients: Each pancake provides: 76 calories, 3 g protein, 2 g fat, 12 g carbohydrate, 2 g fiber, 19 mg cholesterol and 166 mg sodium.

Alternatives:

- Omit soda, use 2 teaspoons baking powder and $1\frac{1}{3}$ cups regular milk.

- Add $\frac{1}{2}$ cup fresh or frozen blueberries.

- Serve hot, chunky, spiced applesauce or thick fruit sauce over cakes instead of syrup for extra nutrition and fiber.

Breakfast Cookies

$\frac{3}{4}$ cup whole wheat flour	$\frac{1}{2}$ cup untoasted wheat bran*
$\frac{3}{4}$ cup all-purpose flour	$\frac{1}{4}$ cup orange juice
1 teaspoon baking powder	1 egg, beaten
$\frac{1}{2}$ teaspoon baking soda	$\frac{1}{4}$ cup vegetable oil
$\frac{1}{4}$ teaspoon salt	$\frac{1}{4}$ cup unsweetened applesauce
2 teaspoons grated orange peel	$\frac{1}{2}$ cup honey
1 cup raisins	$\frac{1}{3}$ cup nonfat dry milk powder
1 cup bran flakes cereal	

Preheat oven to 350°F. Grease cookie sheets.

In large bowl, combine whole wheat flour, all-purpose flour, baking powder, soda, salt, orange peel and raisins.

In small bowl, combine cereal, bran, orange juice, egg, oil, applesauce, honey, and dry milk powder; blend well. Stir into flour mixture; mix well.

Drop by rounded teaspoonfuls 2 inches apart onto greased cookie sheets.

Bake 12 to 13 minutes or until golden brown. Cool 1 minute; remove from cookie sheets. Makes about $3\frac{1}{2}$ dozen.

Nutrients: One cookie provides 61 calories, 1 g protein, 12 g carbohydrates, 1 g fiber, 2 g fat, 5 mg cholesterol and 29 mg sodium.

Variation:

- Add $\frac{1}{4}$ cup chopped nuts with the dry ingredients.

*This type of bran is also known as Miller's Bran.

Homemade Breakfast Cereal

$3\frac{1}{2}$ cups whole wheat flour*	1 cup brown sugar
1 teaspoon cinnamon	1 teaspoon salt
$\frac{1}{4}$ teaspoon nutmeg	1 teaspoon soda
2 cups buttermilk or sour milk	

Preheat oven to 350°F. Lightly coat 15 $\frac{1}{2}$ x 10 $\frac{1}{2}$ x 1-inch baking pan with cooking spray.

In a large bowl, combine whole wheat flour, cinnamon and nutmeg. In a small bowl, stir together buttermilk, brown sugar, salt and soda. Stir wet mixture into dry mixture until well blended.

Spread the soft, cookie-like dough mixture evenly in prepared pan; bake 25-30 minutes or until golden brown. Remove from pan; place on wire rack. Let stand, uncovered, overnight in a cool place.

When quite dry, break in small pieces and chop in food processor or blender until pieces are the size of Grapenuts.

Spread cereal on two 15 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ " x 1" baking pans. Bake in a preheated 300°F oven until crisp and lightly browned, about 25-30 minutes. Stir cereal often so outer edges do not over-brown.

Remove from oven; let cool. If desired, add dried fruit bits, raisins or nuts. Store in a sealed container. Serve with milk or yogurt. Makes 9 cups or 27 1-ounce servings ($\frac{1}{3}$ cup each).

Nutrients: **One serving provides 91 calories, 3 g protein, 20 g carbohydrates, 2 g dietary fiber, 0 g fat, 1 mg cholesterol and 132 mg sodium.**

*Whole wheat flour made from hard white wheat makes a tasty, mild-flavored cereal.

Fruit and Nut Molasses Bread

1 cup all-purpose flour	1/2 cup chopped nuts
1 cup whole wheat flour	1/2 cup dried fruit bits
1 cup grain mixture*	1 1/2 cup skim milk
3/4 teaspoon salt	1 teaspoon soda
1/2 cup brown sugar	1/2 cup unsulphured molasses
1/2 cup raisins	or honey

Grease a 9 x 5-inch pan or 3 x 6-inch loaf pan.

In a large mixing bowl, combine white flour, whole wheat flour, grain mixture, salt, sugar, dried fruit and nuts.

In a small mixing bowl or glass measuring cup, dissolve soda in milk. Add molasses and stir well. Add the liquid ingredients to the dry ingredients and mix thoroughly.

Pour the batter into the greased pans and cover. Allow to stand 30 minutes before baking. (This should prevent the top of the loaf from cracking.)

Bake at 325°F for 1 to 1 1/2 hours or until a pick inserted in the bread comes out clean. Serves 18.

Nutrients: One serving provides 158 calories, 4 g protein, 32 g carbohydrates, 2 g fat, .4 mg cholesterol, 2.3 g dietary fiber and 176 mg sodium.

*Mixture may be 1/3 cup of bran or germ and 2/3 cup flour, or rice flour, cornmeal, rolled oats, etc.

Saleetah

1 cup water	1 tablespoon whole anise seed
2 cups precooked wheat kernels	2 tablespoons sugar
1 stick cinnamon, or	1/2 cup raisins (golden or dark)
1/4 teaspoon ground	1/2 cup chopped pecans

Combine water, wheat kernels and spices in a pan. Simmer 5 to 10 minutes; remove from heat. Add sugar, raisins and pecans. Chill or serve warm. Serves 6.

Nutrients: One serving provides: 123 calories, 2 g protein, 23 g carbohydrates, 2 g dietary fiber, 4 g total fat, 0 mg cholesterol and 3 mg sodium.

Wheat Sprouts

To make wheat sprouts, thoroughly wash 1/3 cup of wheat kernels. Place in a bowl and cover with enough water for grain to swell (about 1 inch). Cover and let stand overnight in a cool place. Drain and rinse kernels. Wash about three 1-quart jars and place about 1/4 cup of the soaked kernels in each jar. Cover jars with two layers of cheesecloth or nylon netting, fastening them with two rubber bands or a screw-top, canning-jar lid band. Place the jars on their sides in a warm, dark place (68° - 75°F). Once a day, rinse the sprouts by pouring lukewarm water into the jars, swirling to moisten all of the kernels, then pouring off the water. In three or four days, the grain should sprout. Once sprouted, keep refrigerated for up to a week. Use as desired in soups, salads and breads.

Wheat Nuts

Drain cooked wheat in a sieve and place on paper toweling. Let dry for several hours. Preheat deep fat to 360°-375°F. Place only a small amount of wheat in the fat at one time because the moisture will cause the fat to boil and bubble.

When kernels pop and rise to the surface, drain on paper toweling. While still hot, season with salt (try seasoned salt, too) or your favorite seasoning. Eat like popcorn or try on a tossed salad.



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