

# Whole Grain

## Selection

Foods made from wheat, rice, oats, cornmeal, barley or other grains are considered a grain product. There are two subgroups: whole grains and refined grains. Whole grains contain the entire grain kernel. The process of refining grains to make flour and other products removes the fiber and some of the nutrients from the grain. Therefore, select at least half of your grains from whole grain sources. Whole grain sources grown in Montana include whole wheat bread, oatmeal, whole corn and hulled barley. Although most refined grains are enriched—the nutrients are added back following processing—they are lacking in the fiber of the original whole grain.

## Storage

Keep whole grains and flour stored in a cool, dry place in airtight containers. To extend shelf life, store in the refrigerator or freezer for up to six months.

## Nutrition Information

Whole grains differ from refined and enriched grains because they consist of the entire grain, bran, endosperm and germ. All of these parts make a more nutrient dense grain product. The outer layer called the bran contains insoluble fiber, B vitamins, trace minerals and phytochemicals and protein. The center of the grain, called the endosperm, contains carbohydrates, protein and soluble fiber. The innermost center is oily and contains Vitamin E and B, healthy fats, protein and trace minerals. Including whole grains as part of a balanced diet is associated with lower body weight and a reduced risk of diabetes, cancer and other diseases.

## Uses

**Breakfast.** Use in parfaits, prepare hot for cereal, or roast with dried fruit to make granola.

**Ground.** Grains can be ground using electric or hand mills. Depending on the types of grain, the flour can be used in products such as breads, muffins, cake, crepes, tortillas, or various desserts.

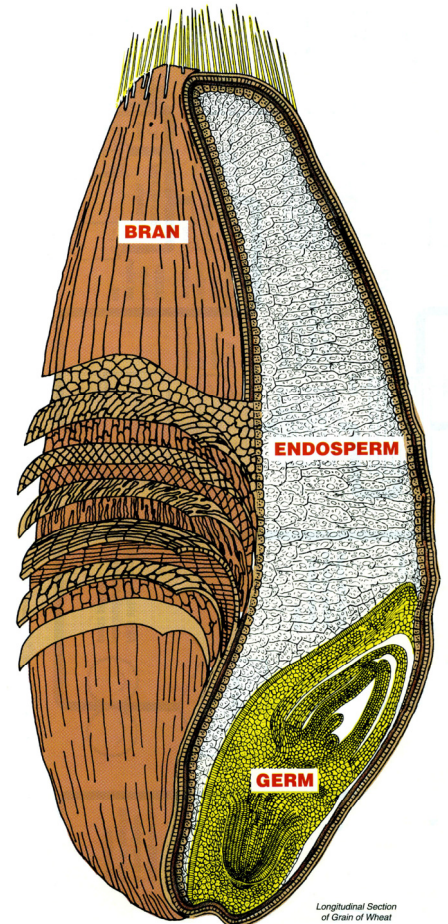
**Pasta.** Whole grain pasta tends to be tougher because it contains bran and germ, thus requiring a longer cooking time. To cook, use approximately 1 cup pasta to 6 cups water or broth, bring to a boil then simmer for 8-12 minutes or until tender. Add to cold salads with chopped vegetables or make a hearty entree with tomato sauce and chopped vegetables.

**Pilaf, Risotto, Soups, Stews or Stir-fry.** Add cooked grains for additional nutrients and texture.

**Pop.** Drizzle cooking oil in a heated pan and add seasonings. Put several corn kernels in the pan. When the kernels pop, add 1/3 cup corn kernels evenly in the pan, cover with lid and remove from heat for 30 seconds. Return to heat and gently shake the pan while kernels pop.

**Salad.** Chill grains after cooking. Combine with chopped vegetables, such as tomatoes and broccoli, then toss with a balsamic, Italian, or another vinaigrette dressing. Add to a pasta or green salad for fiber and texture. Ideal for wheat berries and hulled barley.

**Season.** For added flavor, cook grains in water with broth, or diced tomatoes. To enhance flavor, experiment with low-sodium seasonings such as experiment with allspice, basil, cinnamon, chili powder, celery seed, cloves, garlic, ginger, nutmeg, oregano, sage, and thyme.



Longitudinal Section of Grain of Wheat

## Food Safety Tips

1. **Clean.** Wash hands and food contact surfaces often.
2. **Chill.** Keep produce and food cool and chill promptly.
3. **Separate.** Keep produce and food separate from raw meats and eggs.
4. **Cook.** Cook food to the safe temperature.

Questions? Click on [www.foodsafety.gov](http://www.foodsafety.gov)

# Preparation: Step-by-Step



Wash hands. Thoroughly rinse grain to remove any dirt.  
Check for rocks and other debris.



**Barley.** Prior to use, wash carefully. To cook, use 1 cup hulled barley to 3 cups water or broth, bring to a boil then simmer for 45-60 minutes. Yields approximately 3 1/2 cups.



**Cornmeal and Oats.** To cook, use 1 cup to 4 cups water or broth and bring to a boil. For cornmeal, simmer for 25-30 minutes. Yields approximately 2 1/2 cups. For oats, simmer for 20 minutes. Yields approximately 4 cups.

## For More Information:

Montana State University Extension: [www.msuxextension.org](http://www.msuxextension.org)

MSU Extension Master Gardener: [www.mtmastergardener.org](http://www.mtmastergardener.org)

MSU Extension Food and Nutrition: [www.msuxextension.org/nutrition](http://www.msuxextension.org/nutrition)

MSU Extension Nutrition Education Programs: [www.buycatlivebetter.org](http://www.buycatlivebetter.org)

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**Wheat.** Prior to use, wash and soak wheat berries for 10-12 hours in water and drain. To cook, use 1 cup wheat berries to 4 cups water or broth, bring to a boil then simmer for 45-60 minutes. Yields approximately 3 cups.

## Information Courtesy of:

Edwards, Jane, Garden-Robinson, Julie. (2012). Whole Grains: Agriculture to Health. <https://www.ag.ndsu.edu/pubs/yf/foods/fn691.pdf>  
Montana Barley Production (EB0186), 2008. MSU Extension.

Montana Wheat Production Guide (EB0197), 2010. MSU Extension.

*The Visual Food Encyclopedia*. MacMillan, New York, 1996. Print.

USDA Choose My Plate. (2015). Grains. <http://www.choosemyplate.gov/food-groups/grains.html>