

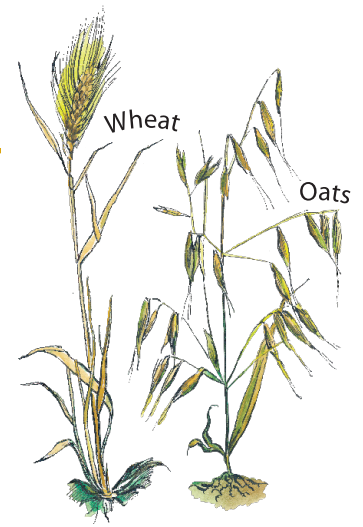
# Grains

## Did You Know

- Montana fields grow an impressive amount of grains including wheat, barley, oats, and corn. Montana is the 3rd top producer of wheat and barley, 17th for oats, and 37th for corn. Wheat production in 2013 was valued over \$1.3 billion, which includes 203,070,000 bushels!
- Wheat is classified by the season in which it is grown, hardness, color, and other factors (e.g., hard red winter wheat). Spring wheat is planted in spring and harvested in late summer. Winter wheat is planted in the fall and harvested in the spring or summer, depending on the conditions. Spring wheat is the most common variety in Montana, accounting for over half of our wheat production.
- Kamut, grown in Montana, is an ancient variety of wheat and is an excellent source of the mineral selenium.
- Barley has played an important role in many cultures throughout history. In ancient Egypt, barley was used in religious ceremonies, while in Rome, gladiators believed barley gave them extra strength.
- Despite their many health benefits and popularity as a breakfast food, only about 5% of oats are used for human consumption, while the rest are used in products and animal feeds.
- What's in a bushel? One US bushel is approximately 8 gallons of dry crops. One bushel of wheat weighs about 60 pounds.

## Selection

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 include whole wheat bread, oatmeal, whole corn, and hulled barley. Although most refined grains are enriched—the nutrients are added back in after processing—they are lacking 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.

## Preparation

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

**Oats.** To cook, use 1 cup steel cut oats to 4 cups water or broth, bring to a boil then simmer for 20 minutes. Yields approximately 4 cups. Use 1 cup rolled oats to 2 1/2 cups water. Bring to water to boil, add rolled oats, simmer for 5 minutes stirring occasionally.

**Wheat.** Prior to use, wash and soak wheat berries for 10-12 hours in water. 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.

## Cooking

**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.** 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 hot dish with tomato sauce and chopped vegetables.

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# Wheat Berry Salad

HACCP Process: \_\_\_\_\_ 1 – No Cook     2 – Cook & Same Day Serve    \_\_\_\_\_ 3 – Cook, Cool, Reheat, Serve    \_\_\_\_\_ 4 – SOP Controlled

Ingredients	6 Servings	25 Servings	Directions
Soft winter wheat berries	1/2 cup	2 1/4 cups	<ol style="list-style-type: none"> <li>Bring a large pot of water to boil. Add wheat berries and cook until tender and starting to split, about 40 minutes. Drain and set aside to cool.</li> <li>Meanwhile, peel sweet potatoes and cut into 3/8-inch dice.</li> <li>Preheat convection oven to 350°F or conventional oven to 375°F.</li> <li>Toss the sweet potatoes, oil, cinnamon, brown sugar, and nutmeg in a medium bowl. Spread evenly on a half sheet pan and cook until tender and browned, about 20 minutes. Set aside to cool. CCP: Heat to 165°F for 15 seconds. CCP: Hold hot for service at 135°F for up to 2 hours.</li> <li>Combine the cooled wheat berries, roasted sweet potatoes, cranberries, salt, and pepper in a large bowl and toss to combine.</li> </ol>
Sweet potatoes	1 cup	2 1/4 cups	
Olive oil	1 tsp	1 Tbsp	
Ground cinnamon	1/4 tsp	1 tsp	
Brown sugar	1 Tbsp	1/4 cup	
Ground nutmeg	Pinch	1/4 tsp	
Dried cranberries	1/3 cup	1 1/2 cups	
Kosher salt	1/3 tsp	1 1/2 tsp	
Black pepper	1/4 tsp	1 tsp	

Serving Size	<u>1/2 cup</u>	Pan Size	<u>half sheet pan</u>	Yield	<u>6, 25 servings</u>
Oven Temperature & Baking Time:	Conventional	Temperature	<u>375°F</u>	Minutes	<u>20 min</u>
		Convection	Temperature	<u>350°F</u>	Minutes

**Meal Component Fulfillment** (Based on Serving Size) 1 Serving Provides:    • .25 oz grain

Nutrition Analysis : Serving Size: <u>1/2 cup</u>					
<u>118</u>	Calories (kcal)	<u>0.01</u>	Saturated Fat (g)	<u>.8</u>	Iron (mg)
<u>2.7</u>	Protein (g)	<u>5.9%</u>	Calories from Total Fat (%)	<u>7</u>	Calcium (mg)
<u>25.75</u>	Carbohydrate (g)	<u>24.5</u>	Vitamin A (IU)	<u>259</u>	Sodium (mg)
<u>0.78</u>	Total Fat (g)	<u>3</u>	Vitamin C (mg)	<u>4</u>	Dietary Fiber (g)

### Notes:

You can substitute brown rice or hulled barley for the wheat berries.

Source: New School Cuisine, [www.vtfeed.org/materials/new-school-cuisine-cookbook](http://www.vtfeed.org/materials/new-school-cuisine-cookbook).

## Fluffy Whole Wheat Biscuits

HACCP Process: \_\_\_\_\_ 1 – No Cook     2 – Cook & Same Day Serve    \_\_\_\_\_ 3 – Cook, Cool, Reheat, Serve    \_\_\_\_\_ 4 – SOP Controlled

Ingredients	6 Servings	25 Servings	Directions
All purpose flour	1/3 cup	1 1/2 cups	<ol style="list-style-type: none"> <li>In a medium bowl, combine flours, baking powder, sugar, and salt; mix well.</li> <li>Cut in butter until mixture resembles coarse crumbs.</li> <li>Stir in milk just until moistened.</li> <li>Turn out onto a lightly floured surface; knead gently 8-10 times.</li> <li>Roll to 1/4 inch thickness; cut with a 2 1/2 inch biscuit cutter and place on an ungreased baking sheet.</li> <li>Bake at 450°F for 10-12 minutes or until lightly browned. Serve warm.</li> </ol>
Whole wheat flour	2/3 cup	2 2/3 cups	
Baking powder	2 tsp	2 Tbsp 2 tsp	
Sugar	1 1/2 tsp	2 Tbsp	
Salt	1/4 tsp	1 1/2 tsp	
Margarine	2 Tbsp	1/2 cup	
Milk	1/2 cup	2 cups	

Serving Size	<u>1 biscuit</u>	Pan Size	<u>baking sheet</u>	Yield	<u>6, 25 servings</u>
<b>Oven Temperature &amp; Baking Time:</b>	Conventional	Temperature	<u>450°F</u>	Minutes	<u>10-12 min</u>
		Convection	Temperature	<u>425°F</u>	Minutes

**Meal Component Fulfillment** (Based on Serving Size) 1 Serving Provides:    • 1.0 oz grain

Nutrition Analysis : Serving Size: <u>1 biscuit</u>					
<u>120</u>	Calories (kcal)	<u>1.02</u>	Saturated Fat (g)	<u>1.03</u>	Iron (mg)
<u>3.2</u>	Protein (g)	<u>33.9%</u>	Calories from Total Fat (%)	<u>121.5</u>	Calcium (mg)
<u>18</u>	Carbohydrate (g)	<u>207.9</u>	Vitamin A (IU)	<u>365</u>	Sodium (mg)
<u>4.5</u>	Total Fat (g)	<u>0.1</u>	Vitamin C (mg)	<u>1.74</u>	Dietary Fiber (g)

Source: Montana's Healthy School Recipe Roundup; Recipe submitted by Lynn White, Bridger School, Bridger, Montana. [http://opi.mt.gov/PDF/SchoolFood/HealthyMT/13April\\_HealthyMT\\_RecipeRoundup.pdf](http://opi.mt.gov/PDF/SchoolFood/HealthyMT/13April_HealthyMT_RecipeRoundup.pdf)

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

**Pop.** Drizzle cooking oil in a heated pan and add low-sodium seasonings, if desired. 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. Ideal for wheat berries and hulled barley.

**Season.** For added flavor, cook grains in water, broth, or tomato sauce. To enhance flavor, experiment with allspice, basil, cinnamon, chili powder, celery seed, cloves, garlic, ginger, nutmeg, oregano, sage, and thyme.

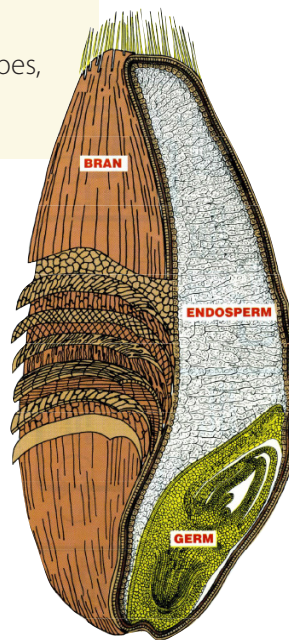
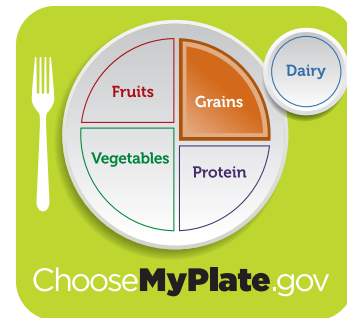
*Adapted from the Grains Food Fact Sheet developed by Montana State University Extension. For the full fact sheet and other resources, visit: <https://nutrition.msuxextension.org/>.*

## Dig Deeper

For sources and photo credits along with more recipes, lessons, quick activities, resources, and guides, visit: [mtharvestofthemoth.org](http://mtharvestofthemoth.org).

## Nutrition Information

When the grain kernel is intact (the bran and germ haven't been removed in processing), it is rich in fiber and many minerals, B vitamins, and folic acid. However, when it is processed to make white flour, the fiber and most of the vitamins and minerals are lost. All grains are rich in carbohydrates. Fiber is necessary to maintain a healthy digestive system. Gluten is contained in the endosperm of many grains and creates the texture and volume of bread by stretching and capturing gasses released by yeast or other leavening agents. While some individuals may have Celiac Disease, have a wheat allergy, or are sensitive to gluten, most people are able to eat gluten-containing grains without issue. Oats do not contain gluten, however, they are often stored or processed with wheat, and therefore are not usually acceptable for those with gluten intolerances.



## 4 Montana Harvest of the Month: Grains



The Montana Harvest of the Month program showcases Montana grown foods in Montana communities. This program is a collaboration between Montana Farm to School, Office of Public Instruction, Montana Team Nutrition Program, National Center for Appropriate Technology, Montana State University Extension, Gallatin Valley Farm to School, FoodCorps Montana, and Montana Department of Agriculture. More information and resources are available at: [mtharvestofthemoth.org](http://mtharvestofthemoth.org).

Funds were provided in part by a USDA Team Nutrition Training grant, a USDA Farm to School grant, Montana Healthcare Foundation, Northern Pulse Growers Association, Montana Department of Health and Human Services, and Montana School Nutrition Association. USDA is an equal opportunity provider and employer. The Montana State University Extension Service is an ADA/EO/AA/Veteran's Preference Employer and Provider of Educational Outreach. This publication was supported by the Grants or Cooperative Agreements Numbers, 6 U58DP004818-03-01 & 5 U58DP004818-03-00.