

# Barley Facts

## Industry and product information

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## Barley production

Barley is a short-season, early maturing crop grown commercially in both irrigated and in dry land environments. Because the grain adapts well to different types of environments, it is grown in many regions throughout the United States. In fact, barley is grown in 27 states across the country. Major producing states include North Dakota, Idaho, Montana, Washington, Colorado, Wyoming, Virginia, Minnesota, Maryland, South Dakota, Oregon and Utah.

Between 1995 and 2003, US barley production averaged nearly 320 million bushels per year, with an estimated annual value of nearly \$760 million as a raw agricultural commodity.

Source: National Barley Growers Association

## Barley uses

Barley is used commercially for animal feed, to produce malt (an important ingredient in beer production), for seed and for human food applications. Approximately 51 percent of the barley crop consumed in the US is used for animal feed. Forty-four percent is used for malt production, 3 percent as seed and 2 percent for food products. In addition to domestic use of barley, exports of the grain averaged about \$155 million for barley and its milled products, \$44 million for malt and malt extracts and \$269 million for beer between 1991 and 2000.

Source: National Barley Growers Association

## Definitions

### Barley

Fourth major world cereal belonging to the family, Poacea, the tribe Triticeae and the genus Hordeum. All cultivated barley belongs to *Hordeum vulgare*. Cultivated barley can have either the 2-row or 6-row head type on which either covered or hulless (naked) seed develop.

Source: American Association of Cereal Chemistry Barley Glossary

### Covered barley

Barley kernels with the tough inedible outer hull still attached. This inedible hull must be removed before the barley can be used for human consumption.

### Hulled barley

Covered barley that has been minimally processed to remove only the tough inedible outer hull. Because hulled barley has been minimally processed, most of the bran and endosperm is left intact and the germ is present, making hulled barley whole grain. Hulled barley is available in the following forms:

**Kernels** (also called berries)

**Flakes**

**Grits** (also called cut or bits)

**Flour** (also called ground or meal)

### Hulless barley

This is a type or class of barley in which the tough inedible outer hull is loosely adhered to the kernel. The outer hull is so loose that when the barley is harvested in the field, the outer hull often falls off. Because the outer hull is so loose, this type of barley requires minimal cleaning after it is harvested. Because this product is minimally processed, most of the bran and endosperm is left intact and the germ is present. Processors may also call this type of barley "naked" barley. Hulless barley is considered whole grain. It is available in the following forms:

**Kernels** (also called berries)

**Flakes**

**Grits** (also called cut or bits)

**Flour** (also called ground or meal)

### Pearled barley

Covered barley that has been processed to remove the tough inedible outer hull and then pearled or polished further by an abrasive scouring process. Regular, medium and fine pearl can be produced by increasing the amount of abrasion. Pearled barley may also be called blocked, pot or scotch barley. Because the abrasive pearling process may remove some of the bran, germ or outer endosperm, pearled barley is not considered whole grain.



Pearled barley is available in the following forms:

**Kernels** (also called berries)

**Flakes**

**Grits** (also called cut or bits)

**Flour** (also called ground or meal)

**Quick cooking kernels or flakes**

## Barley and whole grain

In its natural state, a whole grain is considered the entire seed or kernel of the plant. The seed or kernel is made up of three parts, the bran, germ and endosperm. Whole grain products contain essential parts and the naturally occurring nutrients of the seed or kernel.

**Bran** – The outer skin of the kernel. The bran is typically a tougher layer that's designed to protect the rest of the seed or kernel. The bran layer usually contains important antioxidants, B vitamins and fiber. It's important to note that for many grains, fiber is only found in the bran layer. Barley differs from many grains in that fiber is found throughout the entire barley kernel and not just in the bran layer.

**Germ**-This layer is actually the embryo of the seed or kernel. The germ layer typically contains B vitamins, some protein, minerals and healthful fats.

**Endosperm**-This is the germ's food supply and is the largest portion of the kernel. The endosperm contains starchy carbohydrates, proteins and small amounts of vitamins and minerals.

### Processed products and whole grain

A seed or kernel that is processed (such as cracked, crushed, rolled or extruded) may be considered whole grain if the end product contains essentially the same balance of nutrients that are found in the original seed or kernel.

### Is barley considered whole grain?

Specific types of barley that are minimally processed are considered whole grain. These include:

**Hulled barley**-Kernels are minimally processed to remove only the tough inedible

outer hull. Most of the bran and endosperm is left intact and the germ is present. Products made from hulled barley (flour, flakes and grits) are considered whole grain.

**Hulless barley**-Tough inedible hull is loosely adhered to the kernel and requires minimal cleaning. Most of the bran and endosperm is left intact and the germ is present. Products made from hulless barley (flour, flakes and grits) are considered whole grain.

### What about pearled barley?

Because pearled barley undergoes more processing, some insoluble fiber, trace minerals and micronutrients may be lost. Pearled barley and products made from pearled barley (flour, flakes and grits) are not considered whole grain. However it's important to note that pearled barley (even heavily pearled barley) retains important nutrients including significant amounts of heart-healthy soluble fiber. This is because, unlike some other grains, barley contains fiber throughout the entire kernel and not just in the bran layer.

## Product availability

### Pearled barley

Pearled barley products are more readily available at the retail level compared to hulled and hulless barley. Pearled barley kernels or berries are found in most supermarkets next to dry beans, rice and lentils. Usually the kernels or berries are simply labeled "pearl barley". Flour and flakes made from pearled barley may be found in the bulk foods section of some supermarkets as well as in natural food stores. Pearled barley products may be purchased from barley processors or millers for commercial food applications as well.

### Hulled and hulless barley

While available, hulled and hulless barley products are in more limited supply at the retail level. However, they may be purchased from barley processors and millers for use in commercial food applications. These products are often used in commercial food production where whole grain end products are desired.