The Mill at Anselma

Wheat, Flour, and
Our Milling Process

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Miller

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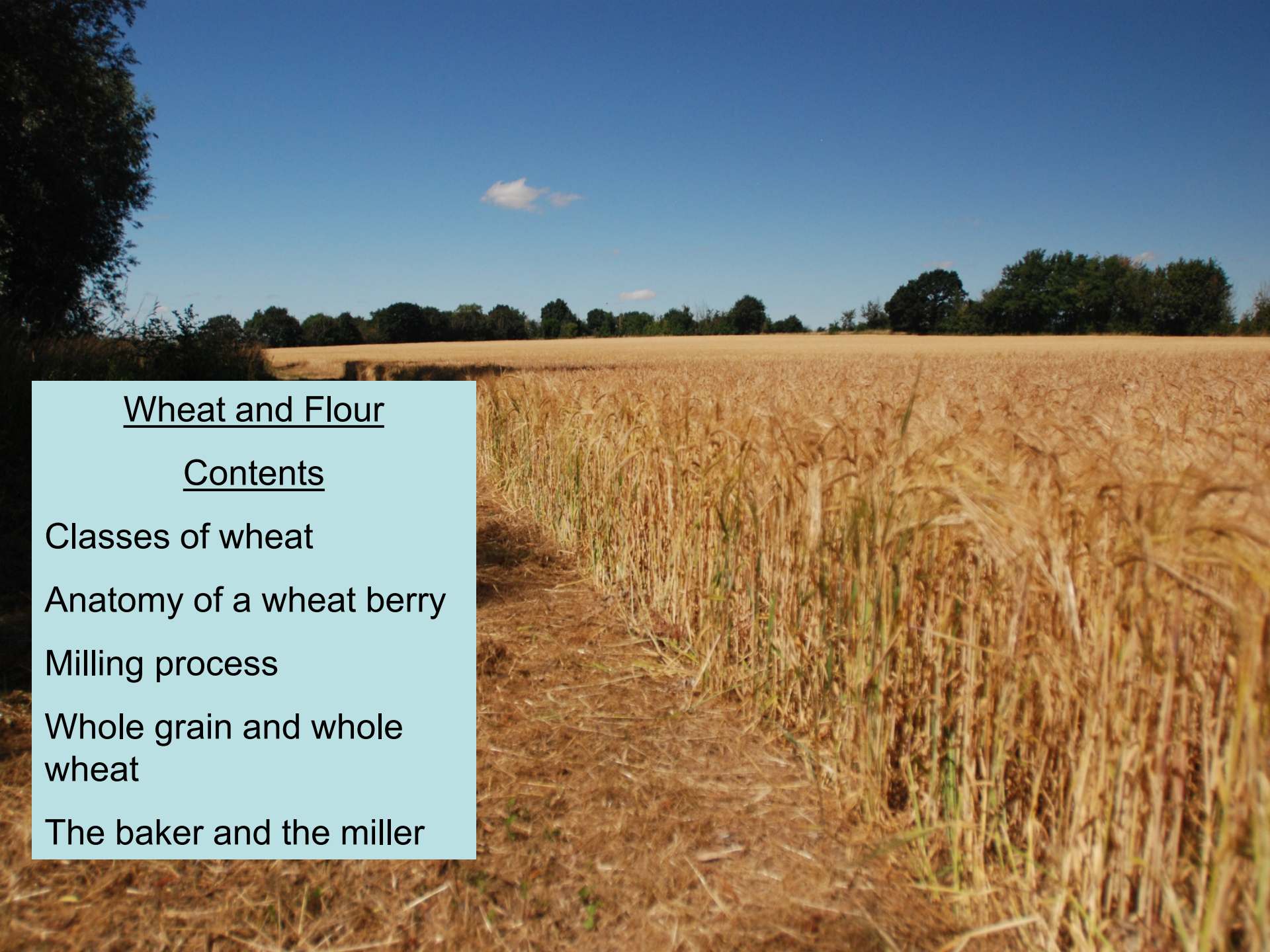
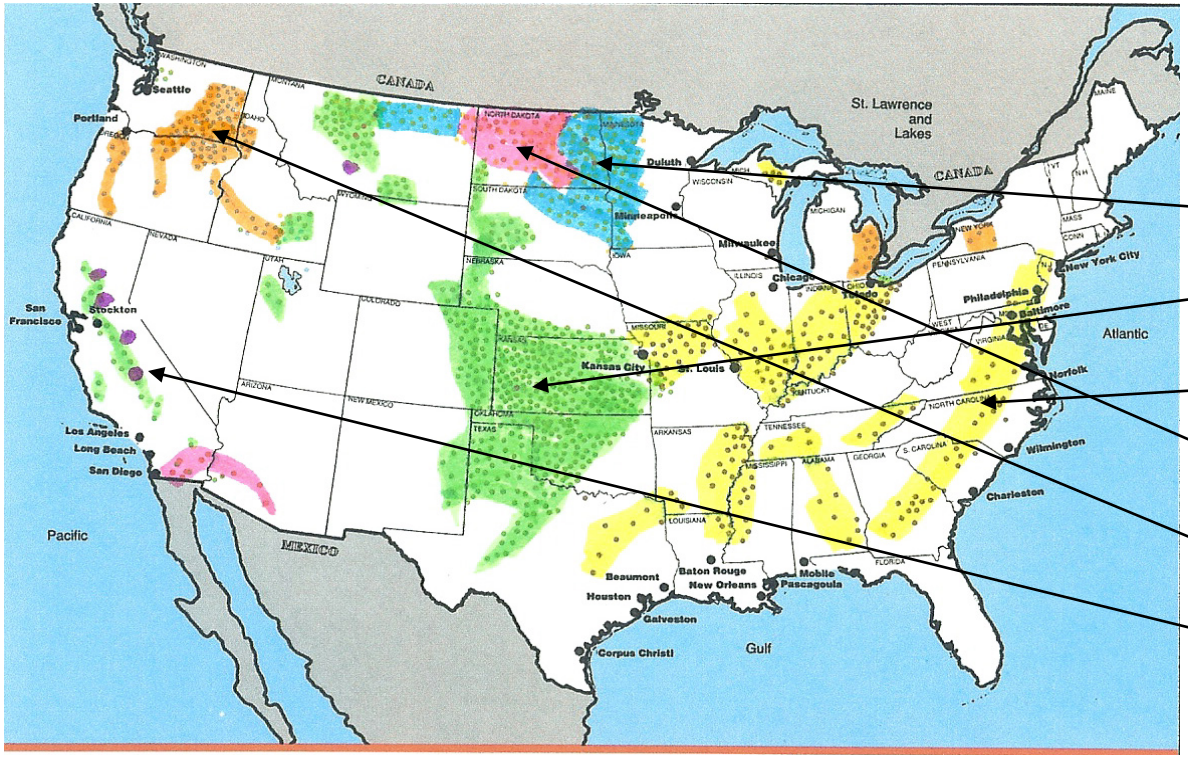


Wheat and Flour

Contents



Six Wheat Classes

Hard Red Spring (20%)

Hard Red Winter (40%)

Soft Red Winter

Durum

Soft White (10%)

Hard White

Spring Wheat: Grown in the spring, harvested in the fall

Winter Wheat: Grown in the fall, lies dormant over the winter, resumes growth in the spring, harvested in early summer

We use soft red winter wheat grown in the mid-Atlantic states, and hard red spring wheat grown in Minnesota

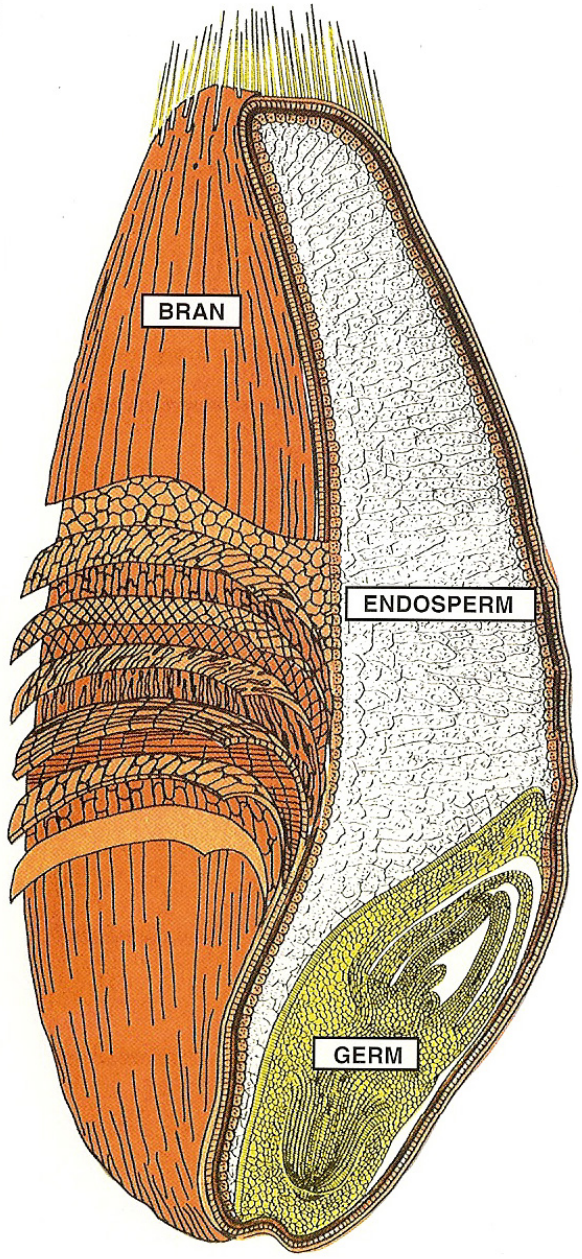
Why the different wheat classes? It's all about protein.

Hard wheat varieties have higher protein levels and are better for breads.

Soft wheat varieties have lower protein levels and are better for pastries.

Six Wheat Classes	Protein Level (%)
Hard Red Spring	13 - 14
Hard Red Winter	11 - 12
Soft Red Winter	10
Durum	15
Soft White	10
Hard White	11 - 12

The variety of hard red spring wheat that we use for bread flour has a protein level of 13%, and the variety of soft red winter wheat that we use for pastry flour has a protein level of 9%. When the two flours are mixed in equal proportions, the result is an all-purpose flour with a protein level of 11%.



Anatomy of a Wheat Berry

The wheat berry is made up of the endosperm, 83%, Bran,15%, and Germ, 2%.

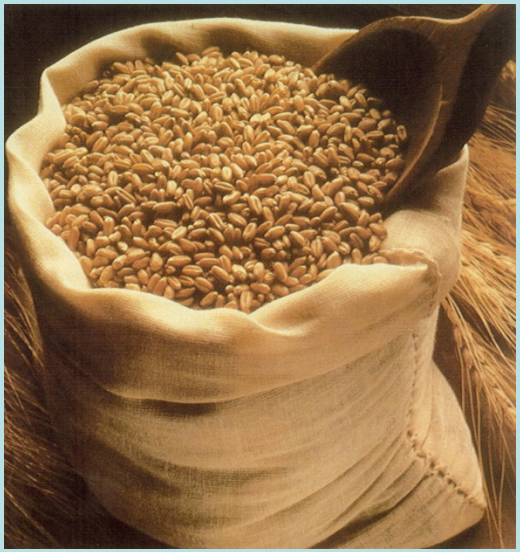
White flour is made from the endosperm, and the objective in milling is to recover as much of the endosperm as possible.

The key components of the endosperm are protein (13% for bread flour) and starch (70% for bread flour).

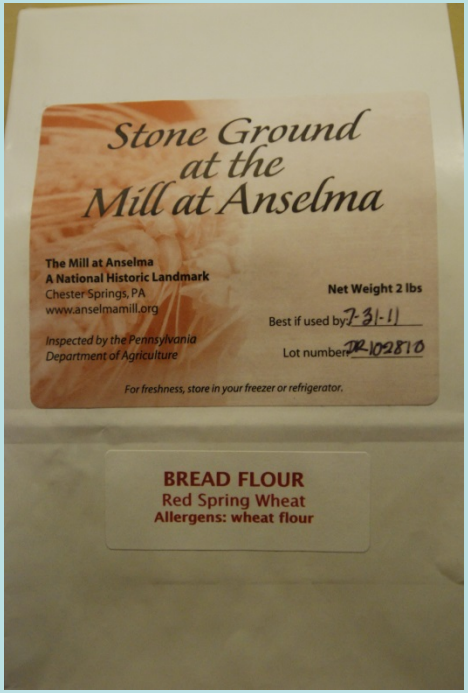
Why is Protein Important?

When flour is mixed with water, the proteins form gluten. The higher the protein level, the more gluten can be formed.

Wheat from the field is cut and threshed, and the wheat berries are cleaned

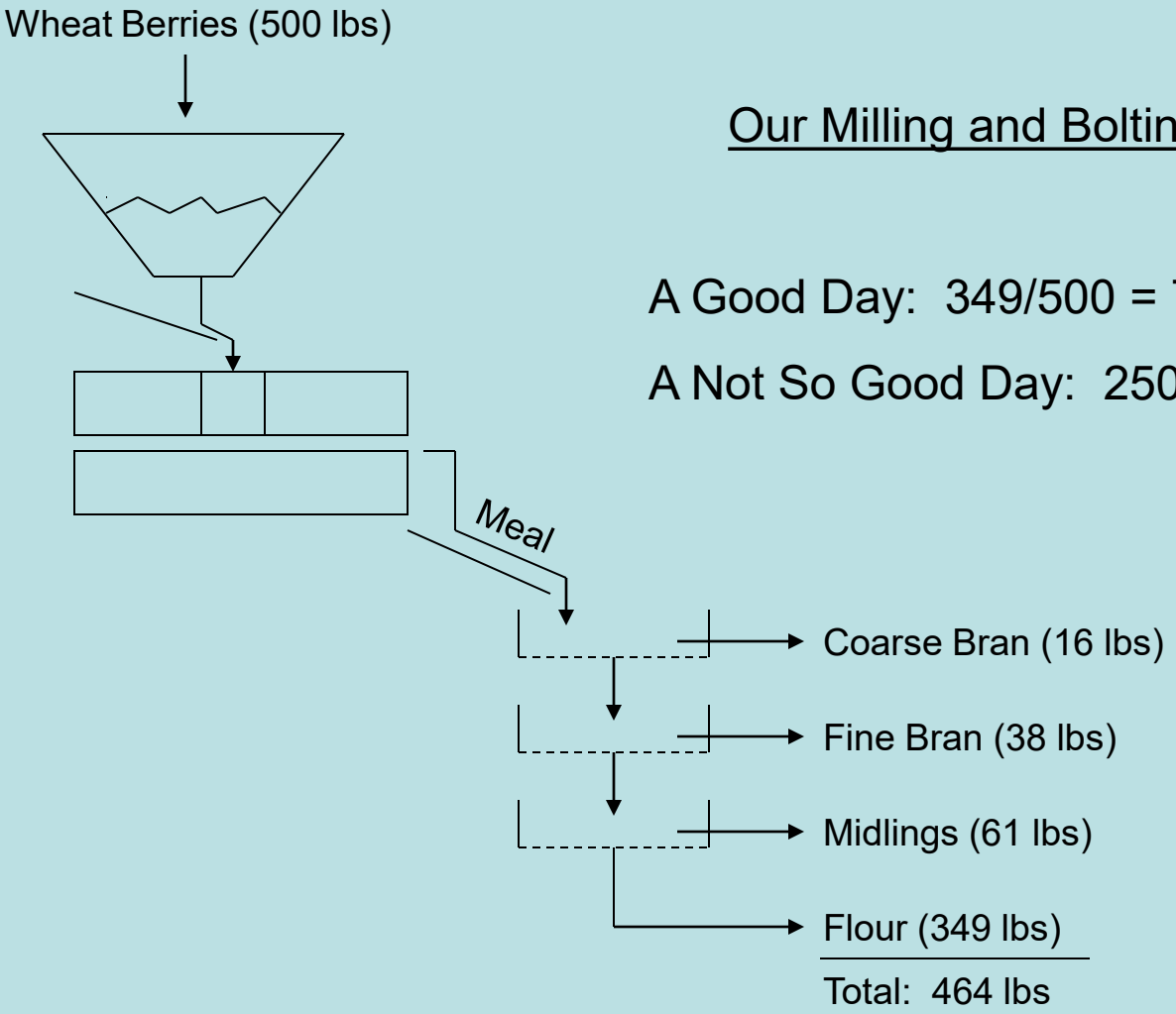


At our mill the wheat is ground, the meal is bolted, and the flour is packaged



From the field to packaged flour
Process steps

Our Milling and Bolting Processes



A Good Day: 349/500 = 70% Yield

A Not So Good Day: 250/500 = 50% Yield

Whole Grain and Whole Wheat

Typically, whole grain flour is made by milling the entire wheat kernel. It must contain bran, germ and endosperm, in the same proportions as in the original wheat kernel.

Whole wheat flour contains bran, germ, and endosperm. If the bran, germ and endosperm, are in the same proportions as in the original wheat kernel, then the whole wheat flour is the same as whole grain flour.

Our visitors can mix their own whole wheat flour by mixing one and one half cups of fine bran with 1 pound of flour.

Why Our Flour is Better

In the stone grinding process, there is no way to remove the germ or to completely remove all of the bran. The germ contains almost all of the nutrients in the wheat, and the bran is an important source of fiber. These are preserved in our flour products.

We recommend that our visitors refrigerate our flour products. While the germ is nutritious, it also contains oils that limit the shelf life of the flour. Flour stored in the freezer will last indefinitely.

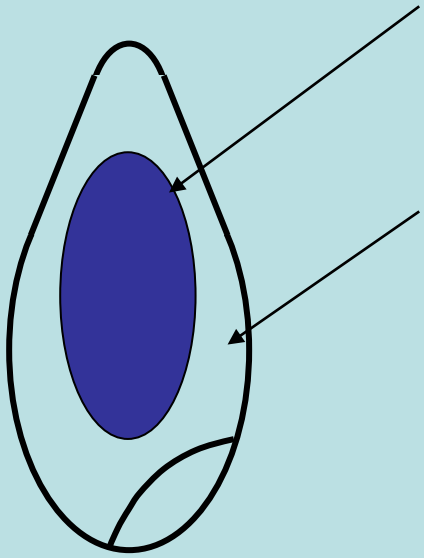
Flour Aging

After flour is produced, and is exposed to the air for several weeks, two things happen during this aging process: The flour becomes whiter, and the gluten that is formed from the flour becomes stronger and more elastic. Bread flour, in particular, benefits from this aging process.

While we try to age our flour for several weeks before selling it to our visitors, some people prefer using the flour as soon as it is produced. They claim that this “green” flour imparts a “nuttier” flavor.

Commercial mills accelerate the aging process by using additives such as chlorine and potassium bromate. Chlorine is used mostly in cake flours because it whitens the flour, weakens the gluten, and allows the starch to hydrate and swell more readily. Potassium bromate is used in bread flours because it strengthens the gluten. Companies are exploring safer alternatives to chlorination and the use of bromates.

The Baker and the Miller



Patent flour is milled from from the heart of the endosperm. It is the highest quality commercial grade flour.

Clear flour is milled from just inside the bran layer. It is the lowest quality commercial grade flour. It is commonly used to add protein to low protein grains such as rye.

Straight flour = patent flour plus clear flour, the entire endosperm. It is not commonly used by bakers.

Most flours used by bakers are patent flours, whether for breads, pastries or cakes

Definitions

Bolt – To sift.

Gluten – A sticky, nutritious protein substance containing the proteins glutenin and gliaden. Gluten gives dough its tough, elastic quality.

Grist – Any grain that is to be ground or has been ground.

Meal – Any edible grain, coarsely ground and unbolted.

References

From Wheat to Flour by Millers' National Federation, 1996

How Baking Works by Paula Figoni, John Wiley and Sons, Inc., 2011