

Bread Baking

Wheat Gluten in Bread Baking

So you have questions about flours for baking, do you? Well, hang on to your hats 'cause here we go....."All that you have ever wanted to know about flours and gluten but didn't know whom to ask!"

When you ask which flour to use for baking project, you're really asking how much gluten your particular end product needs. Gluten is a protein complex made when you knead together wheat flour and water. What happens is that two proteins in the wheat - gliaden (a "sticky" protein) and glutenin (an "elastic" protein) – come together during the kneading process and form gluten, giving bread dough its characteristic stickiness and elasticity. It is this elasticity which plays a hugely important role in making bread and other leavened baked goods. While the dough is baking away in the oven, gases, which were trapped in the dough during mixing or are produced by leavening agents, begin to expand, causing the dough to stretch. If it weren't for the gluten, the stretched dough would just pop like a bubble and allow the gases to escape, leaving you with a cracker rather than a loaf of bread. The amazing elasticity of the gluten allows this stretching to continue without allowing the gases to escape. Once the dough reaches a certain temperature, the proteins coagulate, and the dough remains in the "stretched" state and gains a light and airy structure. Cool, huh?

Which Flour to Use for Which Dough?

Now here comes the hard part.....Which flour do you buy for which type of baked good? Well, it is easier to decide this when you know how much gluten can be produced with each flour. Basically there are three types of wheat which are made into flour: Durum Wheat, Hard Wheat, and Soft Wheat. Durum wheat has the highest gluten producing capability (because it has the highest protein content of the commercial wheat varieties, roughly 12.0%) and is used to make semolina and flours used in the production of Italian flat breads and pastas. Hard wheat (AKA "spring wheat" from Montana, the

Dakotas, etc.) has more protein than soft wheat but less than durum wheat, and is used to make bread flours (11.7%-13.2% protein) and bakery flours (like high-gluten flour – 13.3%-15% protein). Soft wheat (AKA “winter wheat” from Indiana, Ohio, etc.) has the least protein and is used to make cake flour (6.7%-8.0% protein) or pastry flour (9.0%-10.6% protein). All-purpose flour (11.0%-11.8% protein) is typically a 60%/40% mix of hard and soft wheat, which gives it the ability to be used for a large variety of baked items. Do keep in mind that when you want a nice crusty bread with lots of structure and even crumb, you must use a bread flour for best results! Also, flakier pastries are produced with pastry flour rather than with bread (too much gluten = tough pastry) or all-purpose flour.

This brings me to the point of whole wheat flours (12.5%-13.5% protein). These flours are prepared by grinding the entire wheat kernel (as opposed to just the endosperm minus the bran and germ as in white flours), and tend to produce very heavy baked goods when used alone. NOT recommended for pastry crusts or angel food cake! While whole wheat flours are rich in B vitamins and contain considerable amounts of fiber, they are the sworn enemy of gluten as the bran reduces the effectiveness of gluten during bread baking. See the “sharp” little bits of fiber are like serrated knives to the poor little gluten strands and commence to sheering the strands during kneading and baking. Yet when mixed with approximately 50% white bread flour, the resulting loaf has the wonderful texture, color and flavor of your Grandmother’s favorite recipe!

Vital Wheat Gluten

Vital Wheat Gluten, or Gluten Flour, is the concentrated protein of wheat flour. It improves the performance of all purpose flours by adding a lot of additional gluten in a compact form. Use by replacing one tablespoon of flour in each cup with gluten flour. For example, in a recipe calling for four cups of flour, you would use 3 ½ cups of flour and 4 tablespoons of vital wheat gluten.

How to Use Your Flour Once You Get it Home

The very best way to measure flour is to weigh it to account for any moisture in the air or container it was stored in. Too much moisture will result in a sticky dough and a disappointing loaf – even the humidity on a rainy day has an effect.

If your kitchen isn’t equipped with a scale, the second best way to measure your flour is by spooning it into the appropriate measuring utensil and leveling it off with a pastry scraper or back of a knife. (NEVER pack down flour or scoop it out of the bag with the measuring cup. You can easily add too much flour this way, resulting in a dry dough and overly tough loaf.)

It is best to store your flour in an airtight container (to keep out moisture and other undesirables) at room temperature in a dark area. In summer in warm climates, it’s worth storing whole grain flours in the refrigerator. The trade-off in moisture added to the flour is more than made up for by keeping the oils in the flour sweet.

Happy Baking!

What we use for baking

Baked Good	Flour
White Bread	Bulk Organic Unbleached Enriched White flour AND replace 1 Tbsp. per cup with vital wheat gluten
Wheat Bread	50% Bulk Organic Unbleached Enriched White flour, 50% Bulk Organic Medium Stoneground Whole Wheat Flour AND replace 1 Tbsp. per cup of each with vital wheat gluten
Cakes	Pillsbury Softasilk Cake Flour
Pies	50% Bulk Unbleached All Purpose White pastry flour, 50% Bulk Organic Whole Wheat Pastry Flour
Cookies	50% Bulk Organic Unbleached Enriched White flour, 50% Bulk Organic Medium Stoneground Whole Wheat Flour