

## Hard White Wheat vs. Hard Red Wheat

<http://www.thefreshloaf.com/node/6985/wheat-red-vs-white-spring-vs-winter>

“Home millers have definite preferences when it comes to wheat. Many favor hard *spring* wheat over *winter* wheat for it's somewhat higher protein value (and stronger gluten). Furthermore, some prefer the red variety for its robust flavor while others prefer the milder taste of white.”

### Background Behind how White Wheat was Developed?

“Hard white wheat was developed from hard red wheat by eliminating the genes for bran color while preserving other desirable characteristics of red wheat. Depending on variety, red wheat has from one to three genes that give the bran its red cast; in contrast, white wheat has no major genes for bran color. The elimination of these genes results in fewer phenolic compounds and tannins in the bran, significantly reducing the bitter taste that some people experience in flour milled from red wheat. Nutritional composition is the same for red and white wheat.”



Red Wheat

White Wheat

“Spring wheat is planted in April to May, makes a continuous growth and is harvested in August to early September. Winter wheat is planted in the fall. It makes a partial growth, becomes dormant during the cold winter months, resumes growth as the weather warms and is harvested in the early summer (June and July).”

“Flour from hard red winter wheat is often preferred for artisan breads:”

*“Artisan bread flour, which is milled from hard red winter wheat, resembles French bread flour in its characteristics, that is, it is relatively low in protein (11.5–12.5 percent). The low protein content provides for a crisper crust and a crumb with desirable irregular holes...Artisan bread flour often has a slightly higher ash content than patent flour. This creates a grayish cast on the flour and is thought to improve yeast fermentation and flavor.” (Source: How Baking Works by Paula I. Figoni)*

## Are there differences in Baking for Hard Red Wheat vs. Spring White Wheat?

“I wanted to see if the slightly higher protein of spring wheat made a significant difference in gluten development and rising power. A secondary interest was whether there was a marked difference in taste between white and red wheat.”

“I decided to do a two pronged test of home milled wheat flour: red vs. white wheat and winter vs. spring wheat. I used my tried-'n-true recipe for a fifty percent whole wheat loaf bread. I made the bread four times - twice with home-milled hard red winter wheat and twice with home-milled hard white spring wheat. The baker's percentage was the same for all trials, as were the other ingredients and the procedure followed.”

“Here are few recipe details:”

- The dough is leavened with instant dry yeast.
- The recipe uses a biga, which constitutes about 30% of the dough.
- Flour is 50% home-milled whole wheat flour, 50% commercial (white) bread flour (including bread flour in biga)
- Total hydration (including water in the biga) is 64%.
- The recipe includes a small amount of oil (3%) and buckwheat honey (4%) in addition to flour, water, salt and yeast
- Wheat is milled very fine with a Nutrimill. Flour is used within a few hours of milling.

### Fresh Milled Flour

“I get an equally fine flour from winter and spring hard wheat using my Nutrimill grain mill. As expected, red wheat is more tan than white wheat, though the real life difference is somewhat more obvious than the photo below shows. Bran flecks tend to concentrate in the center of the flour receptacle, which accounts for the darker color in that area.”



## Final Dough

“By the time the final dough is ready for bulk fermentation, the color differences have become more apparent. Since the wheat is finely milled, the bran pretty much disappears into the dough. I made no adjustments in water content for the two different grain flours and could find little difference in water absorption, feel or gluten development. All dough’s passed the windowpane test.”



HARD RED WINTER WHEAT



HARD WHITE SPRING WHEAT

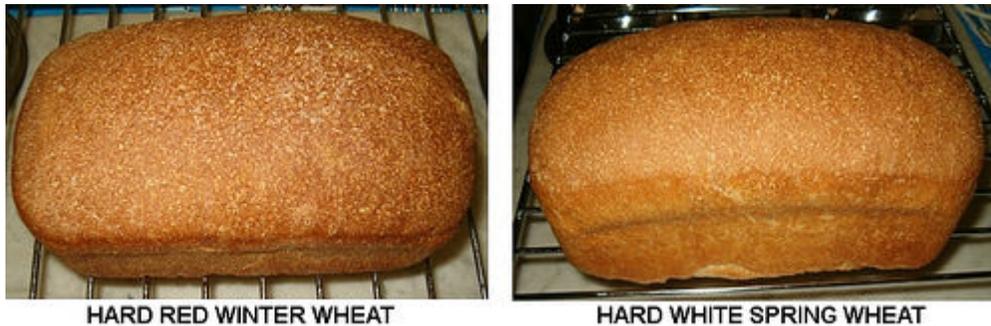
## Baking

“For all trials the dough was baked in loaf pans in a 350°F oven using the cold start / no preheat method. Total baking time was the same for both kinds of whole wheat flours. There was no difference in oven spring; all loaves rose about one inch during the bake. The photos below show the loaves at the start of baking and after about 15 minutes in the oven.”

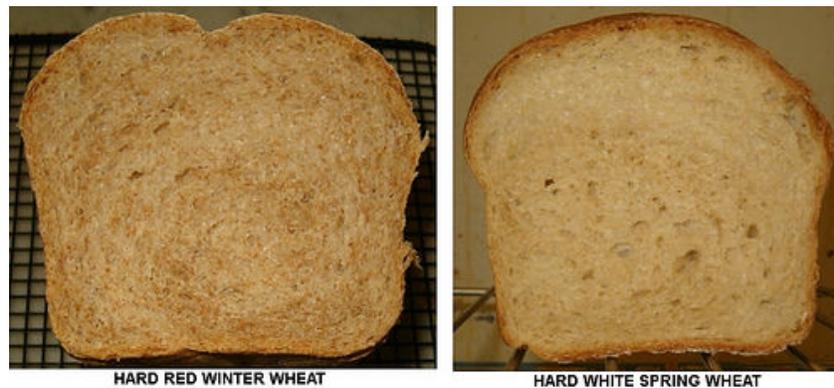


## The Final Product

“Doesn't look much different on the outside, does it?”



“Only way to tell the difference is to cut it. Crumb is virtually identical. The red wheat looks like what most of us think of when we think of whole wheat bread. The white wheat looks a lot more like 100% white bread.”



## Evaluation

“I should have believed the North Dakota Wheat Commission. Their [brochure on hard white wheat](#) says:”

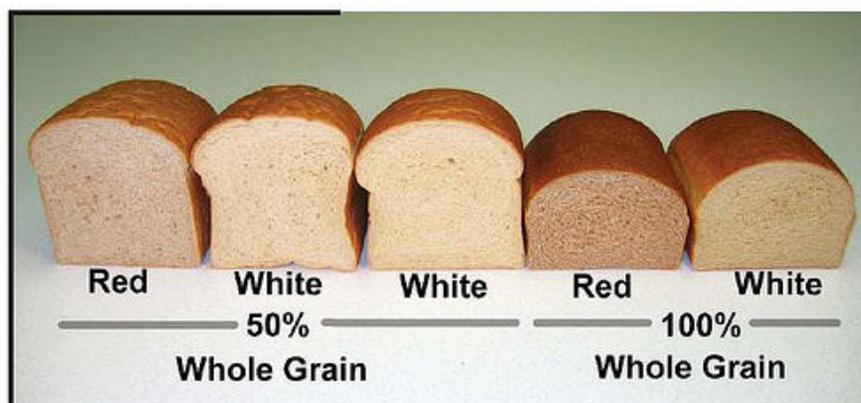


Figure 2. Loaves made of whole grains from white wheat show a distinct color difference from that of red wheat and taste more like the traditional white bread consumers prefer.

“Before I started this test, I'd never worked with hard white wheat. While others frequently comment on its mild taste, I wasn't prepared for a fifty percent whole grain bread that tasted like - ummmm - white bread! OK, not exactly like white bread, maybe a bit denser and a bit more taste but close enough to make me question the wisdom of purchasing 25 pounds of the stuff.”