Mastering Freshly Milled Grains

HWL Kitchen Ledger

Bread Baking 201

Welcome To The Kitchen Ledger

Freshly milled flour changes everything.
For generations, bread was made from flour that had just been ground from whole grain. The wheat berry contains three essential parts — the bran, the germ, and the endosperm — and when flour is milled fresh, all of those elements remain intact. The result is flour with deeper flavor, better aroma, and a level of vitality that simply does not exist in flour that has been sitting on a store shelf for months.

That said, baking with freshly milled grain behaves very differently from baking with commercial flour. The dough absorbs water differently. The bran affects gluten development. Flavor becomes more pronounced, and texture can change dramatically depending on how much whole grain is used. Understanding these differences allows us to use freshly milled flour with confidence rather than frustration.

In our kitchen, the breads we enjoy most are rarely made from one hundred percent whole grain. Instead, we blend freshly milled flour with bread flour to balance flavor, structure, and texture. Many of the best bakeries in the world follow this same approach. Even the well-known country loaf from Tartine Bakery uses only a modest portion of whole grain flour because higher percentages can produce bread that is dense and heavy rather than light and enjoyable.

This ledger was created to serve as a practical reference as we explore freshly milled grains together. Inside you will find notes on different grains, guidance on blending flours, and simple explanations to help you understand what to expect as you begin baking with your own freshly milled flour.
As always, the goal here is not perfection. The goal is to learn, experiment, and build the confidence to bake bread that nourishes the people we love.

Understanding the Wheat Berry

Before working with freshly milled flour, it helps to understand the structure of the grain itself. Every wheat berry is made up of three primary parts: the bran, the germ, and the endosperm. Each plays a role in both the nutritional value and the behavior of freshly milled flour.

The Bran
The bran is the outer protective layer of the wheat berry. It contains fiber, minerals, and many beneficial nutrients. In freshly milled flour, the bran particles remain present unless they are sifted out. While nutritionally valuable, bran can interfere with gluten development by cutting through the developing gluten strands in dough. This is one reason breads made with large amounts of whole grain flour can become dense or heavy if not handled carefully.

The Germ
The germ is the small reproductive center of the grain. It contains natural oils, vitamins, and nutrients that support the growth of a new wheat plant. These oils are one reason freshly milled flour has such wonderful aroma and flavor. However, those same oils are also what cause flour to go rancid over time. When flour sits on a shelf for months, the oils in the germ slowly oxidize. Fresh milling preserves these flavors because the grain is ground immediately before baking.

The Endosperm
The endosperm makes up the largest portion of the wheat berry. It contains the starch and proteins that form gluten during dough development. Most commercial white flour consists primarily of the endosperm because the bran and germ are removed during industrial milling.

When you mill flour at home, all three parts of the grain are present unless you choose to sift out some of the bran. This gives freshly milled flour its distinctive flavor and nutritional richness, but it also means the baker must understand how these components influence the dough.

By learning how bran, germ, and endosperm behave, the baker gains the confidence to work successfully with freshly milled grains.

Choosing the Right Grain for the Job

One of the most exciting parts of working with freshly milled flour is the incredible variety of grains available to the home baker. Each type of wheat — and each heritage grain — behaves a little differently in dough and brings its own flavor, texture, and personality to the finished bread.

Some grains are strong and protein-rich, making them well suited for bread that needs strong gluten development. Others are softer and produce more tender baked goods such as cakes, pastries, and quick breads.

Understanding the differences between grains helps the baker choose the right flour for the desired result.

Hard wheats, such as hard red wheat and hard white wheat, contain higher levels of protein. These grains are often used for yeast breads because the higher protein content helps create strong gluten structure and good rise. Soft wheats contain less protein and produce a finer, more delicate crumb. They are often preferred for pastries, cakes, cookies, and tender quick breads. Heritage and ancient grains bring additional variety. Grains such as einkorn, spelt, and kamut each have unique characteristics that influence both flavor and dough behavior. Some produce very flavorful breads but require slightly different handling because their gluten structure behaves differently than modern wheat.

When baking with freshly milled flour, it is important to remember that using 100% whole grain flour will produce a very different result than baking with white flour. Because bran and germ are present, whole grain doughs can feel heavier and more thirsty, often requiring more hydration and careful fermentation.

For this reason, many bakers begin by blending freshly milled flour with bread flour. A common and very successful starting point is to use roughly 25% freshly milled whole grain flour and 75% bread flour. This approach allows the baker to enjoy the flavor of fresh grain while still producing a loaf with light texture and good rise.

As confidence grows, the baker can gradually increase the percentage of freshly milled grain and explore the unique character of different varieties. The following grain profiles will help you understand the grains in this collection and how each can be used successfully in the kitchen.

Milling Fresh Grain at Home

reshly milled flour begins with whole grain berries. These small, shelf-stable grains can be stored for long periods of time and milled only when they are needed. Milling just before baking preserves the full flavor and aroma of the grain and allows the baker to work with flour at its freshest.

Home grain mills work by grinding the wheat berries into flour using either steel or stone burrs. The mill crushes the entire grain — bran, germ, and endosperm — producing a true whole grain flour.

When milling flour for bread, it is best to mill the grain immediately before mixing the dough whenever possible. Freshly milled flour contains natural oils from the germ that give the flour its wonderful aroma and flavor. Over time those oils slowly oxidize, which is why freshly milled flour tastes noticeably richer than flour that has been sitting on a shelf.

If flour must be milled in advance, it can be stored in a tightly sealed container for a short time. However, the most vibrant flavor will always come from flour that has been milled shortly before baking.

For this reason many home bakers keep a small collection of whole grains on hand and mill only what they need for each batch of bread.

Sifting and Controlling Bran

When wheat is milled at home, the flour contains the entire grain — bran, germ, and endosperm. While this produces wonderfully flavorful flour, the bran can make bread dough more difficult to work with if it is present in large amounts.

Bran particles are sharp and fibrous. During mixing and kneading they can cut through developing gluten strands, which weakens the dough structure. This is one reason breads made with very high percentages of whole grain flour can become dense or heavy.

For this reason many bakers choose to sift freshly milled flour to remove some of the bran before baking.

Sifting allows the baker to control the extraction level of the flour. Extraction simply refers to how much of the original grain remains in the flour after sifting. A lower extraction flour contains less bran and produces lighter bread, while higher extraction flour retains more of the whole grain character.

Even removing a small portion of the bran can dramatically improve dough structure and oven spring while still preserving much of the flavor and nutrition of freshly milled grain.

Some bakers sift flour using simple hand sieves, while others use vibrating sifters or multi-screen machines designed specifically for this purpose. These tools allow the baker to separate the coarsest bran particles from the flour while keeping most of the endosperm.

There is no single correct extraction level. Many home bakers experiment with different levels of sifting until they find the balance that produces the flavor and texture they prefer.

Learning to control bran through sifting gives the baker one more tool for working successfully with freshly milled flour.

Hydration and Dough Behavior

One of the first things bakers notice when working with freshly milled flour is that the dough behaves differently than dough made with commercial flour. Freshly milled flour often absorbs more water and may feel slightly heavier or tighter during mixing.

This happens because freshly milled flour contains the entire grain. The bran and germ absorb water differently than the endosperm alone. Bran in particular can act like a sponge, slowly drawing moisture into the dough over time.

For this reason, doughs made with freshly milled flour often require slightly higher hydration than doughs made entirely with commercial flour. Adding a small amount of additional water can help the dough develop properly and produce a softer crumb.

Another useful technique when working with whole grain doughs is to allow the flour time to fully hydrate before intensive kneading begins. A short resting period — sometimes called an autolyse — allows the flour to absorb water and begin gluten development naturally.

During this rest, the dough will often become smoother and easier to handle. This simple step can make a noticeable difference when working with freshly milled grains.

As with all bread baking, observation is more important than strict formulas. The baker should watch the dough and adjust hydration as needed to achieve a soft, elastic texture.

With practice, the baker learns to recognize how freshly milled flour behaves and can adjust hydration confidently for each batch of dough.

Fermentation and Handling Whole Grain Dough

Fermentation is one of the most important stages in bread baking, and freshly milled flour can influence how dough behaves during this process.

Because freshly milled flour contains the bran and germ of the grain, it also contains additional enzymes and nutrients that can influence fermentation. In some cases this can cause dough to ferment more actively than dough made entirely with commercial white flour.

At the same time, the presence of bran can make gluten development slightly more challenging. Bran particles interrupt the gluten network, which means the dough may not feel quite as smooth or elastic as dough made with refined flour.

For this reason, patience is especially important when working with whole grain doughs. Allowing the dough sufficient time to rest, hydrate, and ferment will help the gluten develop naturally and produce better structure in the finished bread.

Gentle handling is also helpful. Rather than aggressive kneading, many bakers prefer to use a series of folds during fermentation to strengthen the dough gradually. These folds help organize the gluten network while preserving the delicate structure developing inside the dough.

When it comes time to shape the loaf, whole grain dough may feel slightly more fragile than white dough. Working carefully and avoiding excessive flour during shaping will help maintain the structure built during fermentation.

With practice, the baker learns that freshly milled flour rewards patience. The resulting bread often has deeper flavor and character, reflecting the full complexity of the grain itself.

Grain Profiles

Freshly milled grains offer the baker an extraordinary range of flavors, textures, and baking characteristics. While many people think of wheat as a single ingredient, there are actually many varieties of wheat and related grains, each with its own personality in the kitchen.

Some grains produce strong doughs with excellent structure, making them well suited for bread baking. Others produce softer, more delicate flours that are better suited for pastries, cakes, or flatbreads. Heritage and ancient grains can add remarkable flavor and character but sometimes require slightly different handling than modern wheat.

The following grain profiles introduce the grains in this collection and provide a starting point for understanding how each behaves when milled and baked. These profiles are not rigid rules but practical guides to help you decide which grain might be best suited for a particular recipe.

Many bakers begin by blending freshly milled grain with bread flour rather than baking with 100% whole grain flour. This produces bread with better structure while still capturing the wonderful flavor of fresh grain.

In fact, even some of the most respected bakeries known for their use of whole grains take this approach. The famous country loaf from Tartine Bakery in San Francisco — widely admired for its flavor and texture — uses only about 10% freshly milled whole grain flour, with the remaining flour being strong white bread flour. This balance allows the baker to capture the flavor of whole grain while maintaining the light, open crumb that many people love.

At home, many bakers find that a blend of 25% freshly milled whole grain flour and 75% bread flour produces excellent results. This ratio offers a beautiful balance of flavor, texture, and dough strength.

As you gain experience working with freshly milled flour, you may choose to experiment with higher percentages of whole grain. Some grains perform beautifully in larger amounts, while others are best used in smaller quantities for flavor.
Think of this collection as a baker's pantry. Each grain has something different to offer, and learning how to combine them is part of the craft of bread baking.

Hard Red Wheat

Grain Type: Hard wheat
Protein Level: High (typically 12–15%)

Best Uses: Hearth breads, rustic loaves, sourdough, whole grain blends
Hard red wheat is one of the most widely grown bread wheats in North America and is known for its strong gluten potential and deep, traditional wheat flavor. When milled fresh, it produces a robust flour that performs well in yeast breads and naturally fermented doughs.

Because of its high protein content, hard red wheat is capable of forming strong gluten networks that help support structure and rise in bread. For this reason it has long been used as the backbone of many traditional whole wheat breads.

However, hard red wheat also contains a significant amount of bran and has a bold flavor that some people find slightly bitter when used at very high percentages. Dough made from 100% hard red wheat flour can sometimes produce bread that is dense, heavy, or overly hearty in flavor.

For many bakers, hard red wheat performs best when used as part of a blend rather than as the sole flour in a loaf. Combining freshly milled hard red wheat with strong bread flour can produce bread with excellent structure while still delivering the flavor and nutrition of whole grain.

Many home bakers find that 20–30% freshly milled hard red wheat combined with bread flour produces beautiful loaves with good rise, pleasant texture, and balanced flavor.

Hard red wheat is an excellent grain to keep in a baker's pantry because it contributes strength and flavor to many different types of bread. Used thoughtfully, it can add depth and character to rustic loaves without overwhelming the final bread.

Hard White Wheat

Grain Type: Hard wheat
Protein Level: High (typically 12–14%)

Best Uses: Sandwich breads, pan loaves, whole grain blends, everyday bread
Hard white wheat is very similar to hard red wheat in terms of protein and baking strength, but it has a noticeably milder flavor. Because of this, many bakers prefer it when making whole grain breads intended for everyday eating.

When milled fresh, hard white wheat produces flour that is slightly lighter in color and softer in flavor than hard red wheat. The taste is often described as gently nutty and slightly sweet rather than bold or earthy.

This mild flavor makes hard white wheat particularly well suited for breads that will be eaten daily, such as sandwich loaves, dinner rolls, and pan breads. It allows the baker to incorporate whole grain flour without overwhelming the flavor of the finished bread.

Like other whole grains, hard white wheat performs best in many recipes when blended with bread flour. A common starting point is 25–30% freshly milled hard white wheat with 70–75% bread flour. This produces bread with excellent rise while still capturing the character of freshly milled grain.

Hard white wheat is often one of the first grains home millers reach for when learning to bake with freshly milled flour. Its balanced flavor and strong baking performance make it a versatile and reliable grain for many types of bread.

Rouge de Bordeaux

Grain Type: Heritage hard wheat
Protein Level: Moderate to high (typically around 11–13%)

Best Uses: Artisan breads, sourdough, rustic country loaves
Rouge de Bordeaux is a historic French wheat variety that dates back several centuries. It was widely grown in France during the 19th century before modern hybrid wheats became dominant.

Today it has been rediscovered by many artisan bakers who value its flavor and baking performance.

When milled fresh, Rouge de Bordeaux produces flour with a beautiful warm color and a rich, complex aroma. The flavor is often described as nutty, slightly sweet, and deeply "wheaty," making it particularly well suited for rustic breads where the grain itself is meant to shine.

Although it has good baking strength, Rouge de Bordeaux generally performs best when blended with strong bread flour rather than used entirely on its own. This allows the baker to enjoy its remarkable flavor while maintaining reliable dough structure and oven spring.

Many bakers find that 20–30% freshly milled Rouge de Bordeaux blended with bread flour produces exceptional artisan loaves with excellent flavor and texture.

Rouge de Bordeaux is especially well suited for long fermentations and sourdough baking, where its natural flavor compounds have time to fully develop. For bakers interested in exploring heritage grains, it is often one of the most rewarding varieties to work with.

Turkey Red Wheat

Grain Type: Heritage hard red wheat
Protein Level: Moderate to high (typically 11–13%)

Best Uses: Rustic hearth breads, sourdough loaves, heritage grain blends
Turkey Red is one of the most historically important wheat varieties in North America. It was brought to the United States in the late 1800s by Mennonite farmers who immigrated from the Russian Empire. The wheat quickly became known for its reliability, strong baking qualities, and rich flavor.

When milled fresh, Turkey Red produces a flour with a deep wheat aroma and a complex, slightly earthy flavor that many bakers describe as distinctly "old-fashioned." This flavor can bring wonderful depth to rustic breads and long-fermented sourdough loaves.

Like many heritage wheats, Turkey Red can produce excellent bread but often performs best when blended with stronger modern bread flour. Using it as part of a blend allows the baker to enjoy its remarkable flavor while maintaining good dough strength and structure.

Many bakers find that 20–30% freshly milled Turkey Red wheat combined with bread flour produces beautiful loaves with excellent flavor and balanced texture.

Because of its historic importance and rich flavor profile, Turkey Red remains a favorite among bakers who enjoy exploring traditional wheat varieties and bringing heritage grains back into everyday baking.

Einkorn

Grain Type: Ancient wheat
Protein Level: Moderate (typically 9–12%)

Best Uses: Flatbreads, rustic loaves, enriched breads, flavor blends
Einkorn is one of the oldest cultivated grains in the world, dating back thousands of years to the earliest days of agriculture. Unlike modern wheat varieties, einkorn has remained largely unchanged through history and is considered an ancient grain.

When milled fresh, einkorn produces flour with a beautiful golden color and a rich, slightly sweet flavor. Many bakers describe the taste as warm and nutty with a distinctive depth that is different from modern wheat.

Although einkorn contains a relatively high amount of protein, the structure of that protein is different from modern wheat. The gluten it forms is weaker and more fragile, which means dough made with einkorn behaves quite differently from dough made with modern bread flour.

For this reason, breads made with 100% einkorn flour can sometimes feel dense or delicate, and the dough may be softer and more difficult to shape. Many bakers find that einkorn performs beautifully when blended with stronger wheat flour, allowing the baker to enjoy its remarkable flavor while maintaining good structure in the finished loaf.

Einkorn is especially lovely in rustic breads, enriched doughs, and flatbreads, where its rich flavor can shine. When blended thoughtfully with other flours, it adds wonderful character and complexity to many different types of bread. Because of its unique properties, einkorn rewards gentle handling and patience during fermentation.

Spelt

Grain Type: Ancient wheat
Protein Level: Moderate to high (typically 12–14%)

Best Uses: Rustic breads, sourdough loaves, whole grain blends
Spelt is an ancient wheat variety that has been cultivated for thousands of years. Although it is older than modern wheat, it behaves more similarly in dough than some other ancient grains, making it a popular choice for bakers exploring heritage grains.

When milled fresh, spelt flour has a warm color and a mild, slightly sweet flavor with gentle nutty notes. It produces breads with excellent aroma and a tender crumb.

While spelt contains a respectable amount of protein, the gluten it forms is more fragile than that of modern bread wheat. Dough made with spelt often develops quickly but can become soft and sticky if overworked. Because of this, gentle mixing and careful fermentation tend to produce the best results.

Many bakers find that spelt performs beautifully when blended with stronger bread flour. A blend of 20–30% freshly milled spelt with bread flour can produce loaves with wonderful flavor while maintaining good structure and rise.

Spelt is especially well suited for rustic hearth breads and sourdough loaves, where its natural sweetness and complex flavor can shine. It can also be used successfully in flatbreads and other traditional grain preparations.

Because spelt dough can become delicate if overworked, it rewards a light touch and patient fermentation.

Kamut (Khorasan Wheat)

Grain Type: Ancient wheat (Khorasan)
Protein Level: Moderate to high (typically 12–14%)

Best Uses: Rustic breads, enriched doughs, flatbreads, flavor blends
Kamut is the trademarked name commonly used for Khorasan wheat, an ancient grain believed to have originated in the Middle East. The kernels of this grain are noticeably larger than modern wheat berries and produce flour with a distinctive golden color when freshly milled.

One of the most appealing characteristics of Kamut is its flavor. Bakers often describe it as rich, buttery, and slightly sweet. This natural sweetness makes it particularly well suited for breads where the flavor of the grain is meant to be noticeable.

Although Kamut contains a respectable amount of protein, the gluten structure it forms is somewhat more delicate than that of modern bread wheat. For this reason, many bakers prefer to use Kamut as part of a flour blend rather than as the sole flour in a loaf.

When blended with strong bread flour, freshly milled Kamut can produce breads with beautiful flavor, tender crumb, and excellent aroma. Many bakers find that 20–30% freshly milled Kamut combined with bread flour produces very satisfying results.

Because of its gentle sweetness and rich flavor, Kamut is also excellent in enriched doughs, flatbreads, and rustic hearth breads. Used thoughtfully, it adds warmth and character to many different styles of baking.

Durum Wheat

Grain Type: Hard wheat (durum)
Protein Level: High (typically 12–15%)

Best Uses: Pasta, flatbreads, Italian-style breads, specialty loaves
Durum wheat is best known as the grain used to produce semolina flour, the traditional flour used for making pasta. The kernels are extremely hard and have a beautiful golden color that carries through when the grain is milled into flour.

When milled fresh, durum produces a flour with a warm yellow tone and a mild, slightly sweet flavor. While it contains a high level of protein, the gluten structure it forms is somewhat different from that of traditional bread wheat. Because of this, durum flour tends to produce dough that is strong but somewhat less elastic than dough made with bread flour. Breads made entirely from durum flour can sometimes feel tight or dense if not handled carefully.

For this reason, many bakers prefer to use durum as part of a blend rather than as the sole flour in a loaf. Blending freshly milled durum with bread flour can produce breads with wonderful color, subtle sweetness, and balanced structure.

Durum wheat is especially well suited for Italian-style breads, flatbreads, and rustic loaves where its beautiful golden color and delicate flavor can shine. It is also, of course, the classic grain used for pasta making.

Used thoughtfully in bread baking, durum adds both visual appeal and gentle sweetness to many different styles of dough.

Rye

Grain Type: Rye grain (not wheat)
Protein Level: Moderate (but forms very little gluten)

Best Uses: Rye breads, sourdough loaves, flavor blends
Rye is not a wheat but a related cereal grain that has been used for centuries in traditional breads throughout Northern and Eastern Europe.

When milled fresh, rye flour has a distinctive aroma and produces bread with a rich, earthy flavor.

Unlike wheat, rye does not develop strong gluten structure. While it does contain protein, the proteins in rye do not form the elastic gluten network that allows wheat bread to trap gas and rise in the same way. Because of this, breads made with large amounts of rye flour tend to be denser and more compact.

However, rye brings wonderful flavor and character to bread when used thoughtfully. Many bakers incorporate a small percentage of rye flour into wheat bread to deepen the flavor of the loaf without significantly affecting structure.

Blending 10–20% freshly milled rye with wheat flour can produce breads with remarkable aroma and complexity. Rye is also widely used in sourdough baking because it ferments readily and supports active sourdough cultures.

Freshly milled rye flour is especially valued for its bold flavor and traditional character. Used in moderation, it adds depth and personality to many different styles of bread.

Oat Groats

Grain Type: Oat grain (not wheat)
Protein Level: Moderate, but does not form gluten

Best Uses: Flavor blends, porridge breads, soft sandwich loaves
Oat groats are the whole, unprocessed kernels of the oat plant. When milled fresh, they produce a soft, slightly sweet flour with a very mild flavor and a creamy texture.

Unlike wheat, oats do not contain the type of proteins needed to develop gluten structure. Because of this, oat flour cannot produce a traditional risen loaf of bread on its own. Instead, it is best used as part of a blend with wheat flour.

When incorporated into wheat doughs, freshly milled oat flour contributes tenderness and moisture. It produces breads with a softer crumb and a gentle, comforting flavor that pairs beautifully with both sweet and savory preparations.

Many bakers use 10–20% oat flour in a wheat dough to add softness and flavor without weakening the structure of the loaf. Oats are especially popular in sandwich breads and porridge-style loaves where a tender crumb is desirable.

Freshly milled oat flour also absorbs water differently than wheat flour and tends to produce doughs that feel slightly softer or more delicate. When working with oats in bread, it is often helpful to allow the dough a short rest after mixing so the flour can fully hydrate.

Oat groats are a wonderful addition to the home miller's grain collection, offering warmth, softness, and subtle sweetness to many styles of bread.

Butler’s Gold Wheat

Grain Type: Hard wheat (heritage variety)
Protein Level: Moderate to high

Best Uses: Whole grain breads, blended hearth loaves, rustic country breads
Butler’s Gold is a heritage wheat variety prized by many home millers for its beautiful golden color and balanced flavor. When milled fresh, it produces a warm, slightly sweet flour that adds both character and color to bread.

Like most hard wheats, Butler’s Gold has enough protein to contribute to good dough strength. However, when used at very high percentages the bran present in freshly milled flour can still interfere with gluten development, which may result in a heavier loaf.

For this reason, Butler’s Gold performs beautifully when used as part of a blend with bread flour. Many bakers enjoy using 20–30% freshly milled Butler’s Gold in combination with strong bread flour to produce loaves with a rich flavor while maintaining excellent texture.

This wheat variety is especially well suited to rustic hearth breads, sandwich loaves, and everyday country breads. Its mild sweetness and golden color give finished loaves a warm, inviting appearance.

Because it is a heritage wheat, Butler’s Gold also connects modern baking with older agricultural traditions. Many home bakers enjoy exploring these traditional varieties as part of their freshly milled grain journey.

Used thoughtfully, Butler’s Gold can bring both beauty and flavor to a wide range of breads.

Sonora Wheat

Grain Type: Soft white heritage wheat
Protein Level: Low to moderate

Best Uses: Pastries, tortillas, flatbreads, cookies, tender baked goods
Sonora wheat is one of the oldest wheat varieties grown in North America. It was introduced by Spanish missionaries in the late 1600s and became an important grain throughout the American Southwest and northern Mexico.

Unlike hard red bread wheats, Sonora is a soft white wheat, which means it produces flour with lower protein levels and a much more delicate gluten structure. Because of this, it behaves very differently from traditional bread wheat when used in baking.

When milled fresh, Sonora wheat produces a pale flour with a mild, slightly sweet flavor. The doughs made from this flour are softer and more tender, making it especially well suited for foods where strength and chew are not the goal.

Historically, Sonora wheat has been used to make tortillas, flatbreads, and tender pastries. It is also excellent for cookies, biscuits, and quick breads where a soft crumb is desired.

Because it does not develop strong gluten structure, Sonora wheat is generally not used as the primary flour for tall yeast breads. However, it can be blended with stronger wheat flours to soften crumb texture or add subtle flavor.

For home millers, Sonora wheat offers a wonderful opportunity to explore baking beyond traditional bread loaves. Its history and versatility make it a fascinating grain to keep in the pantry.

Warthog Wheat

Grain Type: Hard red heritage wheat
Protein Level: Moderate to high

Best Uses: Rustic breads, whole grain blends, artisan loaves
Warthog wheat is a heritage wheat variety that has gained popularity among modern millers and artisan bakers for its strong flavor and excellent baking performance.

It was developed from traditional wheat lines selected for their ability to grow well in organic and low-input farming systems.

When milled fresh, Warthog wheat produces a rich, warm-colored flour with a bold wheat flavor. Compared with milder wheats, Warthog tends to have a deeper, more pronounced whole-grain character.

Because it is a hard red wheat, Warthog contains the protein necessary for good gluten development. However, like other freshly milled whole grain flours, the presence of bran can make dough slightly more challenging when used at very high percentages.

For this reason, many bakers prefer to use Warthog wheat as part of a blend with bread flour. Using 10–25% freshly milled Warthog wheat can add excellent flavor to a loaf while still allowing the dough to rise well and maintain a pleasant texture.

Some bakers enjoy incorporating small amounts of Warthog wheat into everyday breads simply to deepen the flavor of the loaf. Even a modest percentage can give bread a more complex and rustic character.

For home millers, Warthog wheat offers a wonderful opportunity to explore traditional wheat flavors while still producing beautiful, well-structured breads.

How I Blend Flours in My Kitchen

When baking with freshly milled grains, I almost never begin with 100% whole grain flour. Over many years of baking and experimentation, I have found that blending freshly milled flour with bread flour produces breads that have the best balance of flavor, nutrition, and texture.

A good starting point for most breads is:
15% freshly milled grain
85% bread flour
At this level, the bread still rises beautifully, develops good gluten structure, and produces a light, pleasant crumb. At the same time, the freshly milled grain contributes wonderful flavor, aroma, and nutrition.

For enriched doughs — breads that contain butter, eggs, sugar, or milk — the dough is naturally softer and more tender. Because of this, I often increase the percentage of whole grain.

For enriched breads I frequently use:
30% freshly milled grain
70% bread flour
The fats and sugars present in enriched doughs help soften the crumb and balance the slightly heavier nature of whole grain flour.

Another approach I use often is adding a small amount of strongly flavored wheat simply to deepen the flavor of the loaf. Even a small percentage can make a noticeable difference.
For example, I may add:
• Red Turkey wheat
• Warthog wheat
• Rye
Even 10–15% of these grains can give bread a deeper, more complex flavor without significantly affecting the structure of the dough.

As you become comfortable baking with freshly milled grains, you can gradually adjust these percentages to suit your own taste and the type of bread you want to create.

Why 100% Whole Grain Bread Is Often Difficult

Many people assume that if they are milling their own grain, they should bake bread using 100% whole grain flour. When the bread turns out dense or heavy, they assume they did something wrong.

In reality, this is simply the nature of whole grain flour.
Whole grain flour contains the entire wheat kernel: the bran, germ, and endosperm. While this makes the flour highly nutritious, the bran particles can interfere with gluten development.

Bran acts almost like tiny blades inside the dough, cutting through developing gluten strands. This weakens the structure that normally traps gas during fermentation and allows bread to rise.

As a result, breads made from 100% whole grain flour often rise less and produce a tighter crumb.

This is one of the reasons many experienced bakers prefer to blend whole grain flour with stronger white flour.

Even some of the most respected bakeries in the world use only a small percentage of whole grain flour in their signature breads.

For example, the famous Tartine country loaf uses roughly 10% whole grain flour in the dough. This small percentage adds depth of flavor while still allowing the bread to achieve a light, open crumb.

Blending flours allows the baker to find a balance between flavor, nutrition, and texture.

Grains I Use When Baking Higher Whole Grain Breads

Not all grains behave the same way when used in larger amounts. Some grains produce much lighter, softer breads than others.

When I want to increase the percentage of whole grain flour in a loaf, I often reach for grains that naturally produce a softer texture.

Some of my favorites for higher whole-grain percentages include:

Kamut (Khorasan wheat)
Kamut produces beautiful golden loaves with a soft crumb and a slightly sweet flavor. It is one of the easiest grains to use when increasing whole grain percentages.

Spelt
Spelt creates tender doughs and has a mild, slightly nutty flavor. It can often be used in higher percentages than many other whole grains.
Einkorn

Einkorn produces rich, flavorful bread, though the dough behaves differently from modern wheat and requires gentle handling.
Other grains are better used in smaller amounts because their flavor is stronger or their bran structure makes the bread heavier.

These include:
- Hard Red Wheat
- Red Turkey Wheat
- Warthog Wheat
- Rye

These grains can add tremendous flavor to bread, but I often use them in smaller percentages to keep the crumb light and pleasant.
With experience, you will learn which grains you enjoy most and how to combine them to create breads that suit your taste.

Where I Buy My Grains

Over the years I have experimented with many sources for purchasing whole grains. The companies listed below consistently provide high quality grain suitable for home milling.
For current product links and availability, visit:
HomesteadWifeLife.com

There you will find updated sources for all of the grains discussed in this ledger.

Trusted Grain Sources

Janie's Mill
Excellent heritage grains and stone-milled products. A wonderful source for unique wheat varieties.

Azure Standard
A large supplier of organic grains available in bulk. Many home millers use Azure Standard as their primary grain source.

Breadtopia
A well known supplier of artisan bread baking tools and high quality grains.

Pleasant Hill Grain
A trusted source for grain mills and many varieties of whole grain.