

Sprouted Grain Flours:

NEW FRONTIERS IN BREAD BAKING

By PETER REINHART Guild Member and Chef on Assignment, Johnson & Wales University, Charlotte, NC

If you've followed me through my literary journey with bread, you know that I'm fascinated by new frontiers and revolutionary turning points, whether cold fermentation, new ways to make whole grain breads, or even unconventional methods for making gluten-free bread. Early on, I learned that answers come by asking the right questions: what-if questions and questions that others are too timid or narrowly focused to ask. Some people have the tenacity to do one thing over and over again until they do it better than anyone else. They establish benchmarks and signposts for those who follow in their path. Others, more restless in spirit, step onto paths less traveled and forge new frontiers. Sometimes they go too far and disappear for a time – or forever. But sometimes they stumble upon fertile ground and become the pioneers for the next wave.

While I admire beyond words those who can relentlessly drill down deeper and deeper in their Zen-like quest for the perfect loaf, I tend to be even more fascinated by and drawn toward those adventurous souls who yearn for something not yet seen. I've lived in each world at different times, and I believe both are essential aspects of the journey. But at this crucial time and crossroads in the history of bread, I especially delight in exploring the as-yet-unknown and in meeting others who, each in his or her own way, expand the boundaries of what is possible.

Some of the things these bakers are exploring address current questions related to health and nutrition, some focus on flavor, and some are responses to global, environmental, and holistic concerns. Each is a piece of the puzzle of how bread, glorious in its tradition, symbolism, and significance, is relevant at this time. In fact, I think bread is having, as it has so often throughout history, yet another revolutionary moment.

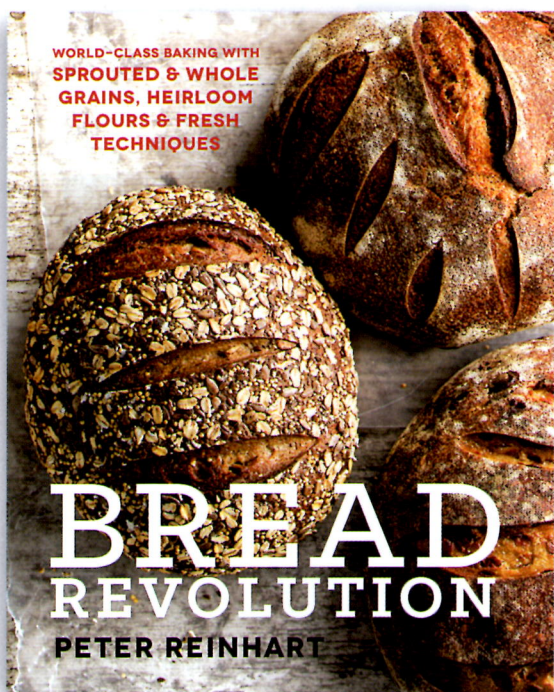
In fall 2009 I got a call from Joe Lindley, the owner of Lindley Mills, located in Graham, North Carolina. I knew of Lindley Mills mainly as an independent, private-label organic mill whose most well-known client was King Arthur Flour. I was already using Lindley Mills flours at a pizza restaurant in Charlotte where I was a partner, and we were very happy with them. Lindley's multigrain blend was unique in that it was milled into a very fine powder, which gave it the ability to form fairly strong gluten bonds despite containing

a number of gluten-free grains. For pizza dough, having a strong gluten network is critical for allowing the dough to stretch without ripping, so this flour was a revelation. However, I did have one concern: it resulted in a crust that was slightly drier, lacking the creamy texture of classic white dough. That said, it was still the best whole grain pizza dough I'd had to that point.

Toward the end of that restaurant's time, Joe Lindley called and asked if I'd be willing to try a new flour made with sprouted wheat that he was developing, called Super Sprout. He'd also developed a sprouted gluten-free flour blend that he called Sprouted Ancient Grain, made with sprouted amaranth, quinoa, millet, sorghum, and buckwheat. Like many people, I'm a fan of Ezekiel and Alvarado Street breads, which are both made with sprouted wheat kernels, so I asked Joe if his new flour was like what they used.

He said, "No. At those places they sprout the wheat, then grind the sprouts into a wet pulp and then add other ingredients and mix it into a dough. The grain never actually becomes flour. With mine, I sprout the grain, then stabilize and dry it, and then mill those sprouted kernels into flour that can be bagged, stored, and shipped just like regular flour. It's a totally different product."

"But doesn't sprouting the wheat compromise the gluten and damage the starch?" I asked. After all, millers had often warned me about this kind of starch damage. Although all flour has some starch damage that arises during harvest and storage, and also from the pounding the grain takes during the milling process, it falls within an acceptable range.



ALL PHOTOS: TEN SPEED PRESS

Sometimes, during overly wet growing seasons or if stored wheat kernels are exposed to too much moisture prior to milling, starch damage can exceed acceptable levels. The resulting flour is either ruined or is considered inadequate for bread, as determined by its falling number.

Joe said, “You’d think sprouted wheat flour wouldn’t work for bread, but for some reason it does, and I’m not totally sure why. I need you to try this and tell me if I’m crazy, but the breads I’ve made from it are really good, and I haven’t needed to add any vital wheat gluten to make it work.”

A few days later, I received two boxes from Joe: one containing twenty-five pounds of Super Sprout wheat flour, and the other containing the Sprouted Ancient Grain blend. Joe advised me that the Super Sprout flour required greater hydration than regular whole wheat flour. “It really sucks up the water,” he said, then added, “I think the key to what makes it work for bread is that I’m using the best-quality high-protein wheat I can find. And that isn’t always easy, especially in the organic realm.”

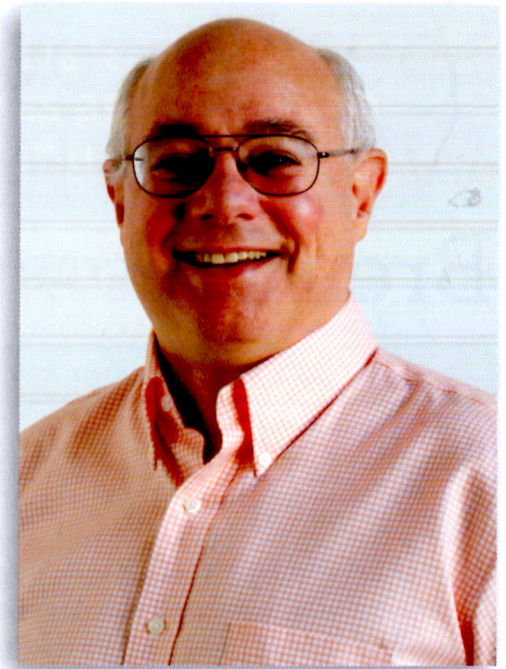
As most bakers know, all wheat is not created equal. Plus, during growth and processing it’s subject to a number of factors that can create differences even in the same strain of wheat, such as amount of rainfall or irrigation, temperature, humidity, and soil quality. Hard wheat, aka high-protein wheat, can also vary in performance depending on whether the protein balance in the kernels is tilted more toward gliadin or glutenin, the two proteins that ultimately create gluten.

It was time for me to play with this flour and see for myself what Joe was getting so excited about. I mixed up a small batch of basic dough with about 85% water to Super Sprout flour. The water was quickly absorbed and within a few minutes the dough seemed fairly firm – a little too firm actually. So I worked in some more water and ended up with a very soft, sticky

dough that felt similar to ciabatta dough. When I did the math, I had used 14.6 ounces (416 g) of water, which, by weight, is 91.25% of the 16 ounces (454 g) of flour. That’s a lot! A typical white flour ciabatta has only about 75% to 80% water. Then, at five-minute intervals, I did a version of kneading involving four stretches and folds. Little by little, the dough firmed up into a supple, very tacky, pillow-like beauty. It had what I like to call bounce.

About three hours later – after a 90-minute first rise, shaping, and a 60-minute final rise followed by 35 minutes of baking in my home oven on a baking stone, I tasted quite possibly the best 100% whole wheat bread I’d ever had. No sugar or honey, no oil, no preferment, and no long, extended fermentation – just flour, water, salt, and yeast. Suddenly, the artisan playbook no longer applied, and this was just my first attempt. I had been prepared to add oil and honey, and maybe milk, to the second go-round, as I would for a standard 100% whole wheat dough, but even without these the bread was soft, moist, and creamy or, as some bakers say, custard-like. This mouthfeel, which I prize in bread, is usually the result of long fermentation and a very hot oven. It can also be accomplished by including fats, sugar, and eggs in the dough, but the holy grail of artisan baking is to get these qualities without resorting to enrichments, as is sometimes achieved in the best baguettes, levains, and ciabattas. It’s difficult to accomplish, though not impossible, with 100% whole wheat flour, and doing so usually entails using ample preferments.

Later, I made several doughs using a combination of Lindley’s gluten-free Ancient Grain blend and the Super Sprout flour to create a multigrain version, finally settling on 20% Sprouted Ancient Grain to 80% Super Sprout. Eventually, I even came up with ways to use the ancient grain blend without any wheat at all, resulting in 100% gluten-free dough. In all cases, the natural sweetness



and tenderness of the sprouted grain obviated the need for sweeteners or oils, though for loaf pan breads, soft dinner rolls, and sweet doughs, I did add some enrichments.

I was having a lot of fun with this flour, and I began to realize that I was standing on the threshold of the next frontier in bread. I followed sprouted grain flour as if it were a breadcrumb trail, leading me to pulp made from sprouted grains, to millers and bakers who had controversial perspectives on baking with whole grains and wild yeast, and even back into the gluten-free world, which I explored in *The Joy of Gluten-Free, Sugar-Free Baking*. Along the way, I visited some arcane corners populated by unusual flours made from grape skins and seeds or from coffee cherries (the fruit that encloses coffee beans). It all adds up to an exciting time for bakers, ushered in by the emergence of sprouted grain flour and proving, once again, that bread is far from dead. Welcome to the new bread revolution! 🌟

From *Bread Revolution, Ten Speed Press, 2014*. Reprinted with permission.

100% Sprouted Whole Wheat Bread **MASTER FORMULA**

Contributed by **PETER REINHART**

This master dough can be used to make bread in any shape or size. It showcases the natural sweetness and tenderness of sprouted whole wheat flour without any added oil, fat, or other enrichments, such as milk, eggs, or sweeteners. Sprouting the wheat changes it so much that many of the “rules” for artisan breads, such as using preferments and long, slow rising times, are unnecessary.

INGREDIENTS

Sprouting the wheat changes it enough so that many of the rules for artisan breads, such as the use of preferments and long, slow rising times, can be accomplished by the flour itself in less time because the enzyme activity provided by long fermentation and preferments is already accomplished during the sprouting phase.

MIXING

- Place dry ingredients in mixing bowl, then add water.
- Planetary mixer with paddle: mix 1 minute on 1st speed, switch to hook, mix 2 minutes on 2nd speed.
- Planetary mixer with hook, or spiral mixer: mix 2 minutes on 1st speed, then 2 minutes on 2nd speed.
- Mix until all the flour is absorbed and a coarse, wet dough is formed. Do not add more flour, as the dough will thicken while it sits.
- Let the dough rest, uncovered, for 5 minutes. Mix on 2nd speed for 2 minutes. The dough should be smooth but will still be very soft and sticky.
- Oil the work surface and hands; stretch and fold the dough. Cover. Repeat three more times, at 5–20 minute intervals. By the final fold, the dough should be supple, tacky, and have a springy quality when patted; the dough should windowpane.

FERMENTATION

- Place the dough in an oiled bowl or container. Cover dough container (if using plastic wrap, keep the plastic wrap off of the dough surface).
- Bulk ferment at room temperature for approximately 90 minutes (or for less time at a warmer temperature, but no warmer than 90°F).
- Dough may be retarded overnight, immediately after the final stretch and fold.
- The dough should double in size.

SHAPING

- If making pan loaves, oil loaf pans. Oil the work surface.
- If dough was retarded, divide dough while it is still cold.
- Divide at 737 g for hearth and pan loaves (8" x 4½" pan size), or desired weight for rolls.
- If the dough needs it, pre-shape and allow to rest for 5–20 minutes before final shaping.
- Shape as desired.

PROOF & BAKE

- Mist the top of the dough with spray oil and cover.
- Proof until the dough grows by 1½ times in size (60–90 minutes, or if retarded, 2½–3½ hours); proofing time may vary depending on proofing conditions.



100% SPROUTED WHOLE WHEAT BREAD

TOTAL FORMULA		
Ingredients	%	kilograms
Sprouted Whole Wheat Flour*	100.00	5.193
Water	90.00	4.674
Salt	1.55	0.080
Instant Yeast	1.00	0.052
Totals	192.55	10.000
Vegetable Oil		As Needed

*100% sprouted whole wheat flour (13.5% protein)

- The dough is fragile because it is fully hydrated; it will fall if you proof to double in size. It is better to bake it while it is still on the rise; when poked with your finger, it should spring back within a few seconds rather than hold the dimple.
- Bake until the internal temperature reaches 190°F for soft loaves, or 200°F for crusty hearth bread.
- Before serving, cool loaves on a cooling rack for at least 30 minutes; cool rolls for at least 10 minutes.
- For a crisper crust, turn off the oven when the bread appears to be done but leave the bread in for an additional 5 minutes to drive off more moisture.

PROCESS – 100% Sprouted Whole Wheat Bread

Mixing	Type of mixer	Planetary or Spiral	
	Mix style	Improved	
	1st Speed	0:01–0:02	
	2nd Speed	0:02	
	Rest	0:05	
	2nd Speed	0:02	
	Number of folds	4	
	Timing for folds	0:05–0:20	
	Dough temp	77°F–81°F	
	Fermentation	Length of time	1:30
Temperature		Room	
Shaping	Divide	As desired	
	Preshape	As necessary	
	Resting time	0:05–0:20, as necessary	
	Shape	As desired	
	Proofing device	Banneton, couche, loaf pan, or parchment-lined sheet pan	
	Final proof time	1:00–1:30	
Proof & Bake	Temperature	Room	
	Oven type	Deck	Convection
Scoring	As desired	As desired	
Steam	Yes	Yes	
Total bake	0:30–0:35, may vary		0:30–0:35, may vary
	based on weight of loaf		based on weight of loaf
Temperature	450°F	425°F	
Damper open	After 0:05–0:10		

SEMIFINALISTS FOR THE 2015 JAMES BEARD AWARD FOR OUTSTANDING BAKER

The Outstanding Baker category is new in 2015. We're proud to see that The Guild is so well-represented on the list – Guild members are shown in color. Our congratulations to all!

- Evan Andres** Columbia City Bakery, Seattle, WA
- Leif Bjelland** Le Petit Outre, Missoula, MT
- Joanne Chang** Flour Bakery + Cafe, Boston, MA
- Andre Chin** and **Amanda Eap** Artisan Boulanger Patisserie, Philadelphia, PA
- Judy Contino** Bittersweet Pastry, Chicago, IL
- Cheryl** and **Griffith Day** Back in the Day Bakery, Savannah, GA
- Abe Faber** and **Christy Timon** Clear Flour Bakery, Brookline, MA
- Mark Furstenberg** Bread Furst, Washington, D.C.
- Zachary Golper** Bien Cuit, Brooklyn, NY
- Tim Healea** Little T American Baker, Portland, OR
- Stephen Horton** Rustica Bakery, Minneapolis, MN
- Marie Jackson** The Flaky Tart, Atlantic Highlands, NJ
- John Kraus** Patisserie 46, Minneapolis, MN
- Jim Lahey** Sullivan Street Bakery, NYC
- Phoebe Lawless** Scratch Bakery, Durham, NC
- Belinda Leong** and **Michel Suas** B. Patisserie, San Francisco, CA
- Matt Lewis** and **Renato Poliafito** Baked, Brooklyn, NY
- Cheryl Maffei** and **Jonathan Stevens** Hungry Ghost, Northampton, MA
- Dave** and **Megan Miller** Baker Miller Bakery & Millhouse, Chicago, IL
- Lauren Mitterer** WildFlour Pastry, Charleston, SC
- Alison Pray** Standard Baking Co., Portland, ME
- Michael Runsvold** Acme Bakeshop, Boise, ID
- Lionel Vatinet** La Farm Bakery, Cary, NC
- Edmund** and **Kathleen Weber** Della Fattoria, Petaluma, CA
- William Werner** Craftsman and Wolves, San Francisco, CA

Thank You and Welcome

Sandy Kim-Bernards of Chabaso Bakery in New Haven, CT, has stepped down as Associate Formula Editor after four years. We thank her for the countless hours she has volunteered to revise the formatting process and manage our large team of formatters, and we are pleased that she has chosen to remain on the team.

We are happy to welcome Jerod Pfeffer as the new Associate Formula Editor. Jerod, who is VP Operations of 460 Bread in Driggs, ID, has been a formatter since 2013. He will work with Allen Cohn, Chief Formula Editor, supervising our dedicated team of volunteer formatters.



