Pennsylvania mill works to develop flour with a taste of history

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By Debbie Koenig

It has taken Dave Poorbaugh almost 10 years to get back to the 1740s. Maybe that's because instead of a DeLorean, his time machine is the historic Annville Flouring Mill in Lebanon County, Pa., which he says is the oldest continually operating flour mill in the country. President of the company that owns the mill, Poorbaugh is a genial history buff who relishes telling tales of his own Colonial lineage. And with this summer's harvest of 35 acres of heritage wheat, it looks as if he'll finally taste the bread of his forefathers.

In 2002, McGeary Organics in nearby Lancaster bought the mill, whose antique rollers had been grinding wheat for McGeary's subsidiary, Daisy Flour, for years. Soon thereafter, Poorbaugh learned just how challenging (read: costly) it is to maintain a working building that old. Replacement parts require a trip to the blacksmith, not the hardware store. His only hope to keep the mill running another 270 years was to set Daisy apart from the lower-priced organic flours sold by larger companies.

Thinking they might use history to Daisy's advantage, Poorbaugh and his colleagues wondered what the mill's very first customers used to bake bread. "Before 1850, the hard wheat most of us use for bread really didn't exist," says Poorbaugh, 65. Hard wheat has a higher protein content, which helps to develop the gluten that's crucial for high-rising, springy loaves. But hard wheat doesn't grow well in the mid-Atlantic region's temperate, moist climate.

"My uncle once told me that at least as late as the 1920s and early 1930s, his family took soft wheat grown on their farm to the local flour mill," Poorbaugh said. "That was milled into flour for the farm kitchen. It was all they had for pancakes, muffins, cakes, bread and everything else." Daisy's bread flour, which is around 12 percent protein, is now milled from organic Midwestern hard wheat, while the local soft wheat becomes pastry flour with about 8 percent protein, ideal for flaky pie crust and tender biscuits.

"We have an agronomist on staff here, so in 2004 I put him to work researching what kind of wheat was grown in the Colonies," Poorbaugh says. The agronomist discovered that some old varieties of soft wheat had as much as three percentage points more protein than the modern ones, enough to take a loaf of bread from leaden to ethereal. As scientists crossbred varieties to yield shorter stalks and easier-to-harvest seedheads, those old flours fell out of favor; most haven't been planted commercially since the Eisenhower era.

Poorbaugh contacted the National Small Grains Collection, the USDA's seed bank, and acquired a handful of seeds for 20 historic varieties. His seven-year roll of the dice was underway.

Planting started with the 10 varieties that seemed most promising. At first, there were so few seeds that Poorbaugh barely needed a farmer. "We only had a pinch of seed. I could've put it in my garden," he chuckles. But his back yard isn't certified organic, so he contracted the seed out to a farmer who was already growing wheat for Daisy Flour. Each year the yield increased, from a few square feet to a few acres, but until 2011 there wasn't enough grain to both mill and save for seed.

"If we throw less than 1,000 pounds of wheat into the mill, hardly anything would come out the other end," he explains. So after each harvest, Poorbaugh doubled down and used it all for seed, crossing his fingers that the jackpot would be enough to secure the mill's future. He and his colleagues have winnowed the list down to seven varieties, but in all this time they've never tasted a single one.

This summer, finally, a lush and picturesque 35 acres of wheat with multi-hued names such as White Wonder, Purple Straw and Red May

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has been thriving in Kutztown, Pa., at the Rodale Institute, a nonprofit organization that researches organic farming methods. And Annville Flouring Mill's rollers have once again ground what might be the very same wheat they started with.

Last October, Poorbaugh entrusted 500 pounds of seed to Jeff Moyer, the Rodale Institute's farm director, for one down-and-dirty reason: soil. "They've been doing something every year to improve that soil since 1972," Poorbaugh says. In this case, "improving" means going back in time. "We planted that wheat in soil that looks more like it did in the 1800s than the soil at most farms today."

Moyer, a laconic, mustachioed organic-farming expert who has been with Rodale for more than 30 years, uses old-world techniques such as crop rotation and compost to nourish the soil. "We're not trying to grow wheat," he says. "We're trying to improve the quality of the soil. If we concentrate our energy there, almost anything we plant will do well." Once Poorbaugh's seeds hit the dirt last fall, "all we did was pray."

The wheat reached its full height — around 3 1/2 feet — in mid-June and spent the following weeks ripening, the seedheads drying into those famed amber waves of grain. A June visit to the farm, where each variety was growing on five acres, showed clear differences, obvious even to a black-thumbed urbanite. Fulcaster wheat is bearded: The seedhead, which contains the kernels that are milled into flour, has bristly whiskers shooting out. Lancaster Red is — you guessed it — reddish in tone, and with a portion of the field blown sideways was the only variety damaged from recent heavy winds. Red Fife, which was planted a bit later than the rest, was still noticeably green and plump.

At each field, Poorbaugh waded into the stalks to snip a sample. In addition to meeting Daisy Flour's own standards, the wheat must satisfy FDA regulations, so the company tests for molds and the microtoxins that mold might produce. Until the full harvest was complete and tested, they couldn't know whether the wheat was fit to mill or if it would be, yet again, used only for seed. The week of July 4, the mill got its answer: Enough Purple Straw and Fulcaster was harvested — and passed the tests — for a small-batch milling. The grain spent weeks aging in the warehouse before being ground just recently. The flour that resulted has a protein content of around 12 percent, as high as the bread flour Daisy now mills from that Midwestern hard wheat. The other five varieties didn't yield enough wheat, so they will be saved again for seed.

Moreover, there remains the question of taste. "We'll mill a portion of each and send samples of the flour to friends, to bake up different loaves and get some feedback," Poorbaugh says. Larger samples will go to a handful of Daisy's commercial bakery accounts, to gauge the professional reaction.

Among those recipients is Ned Atwater, whose Baltimore-based Atwater's bakeries employ traditional methods. He has been using Daisy Flour for about a year. "It has a texture and a smell, a fragrance, that's really unique," he says. "The flour comes out of the mill like velvet."

Atwater says he can't wait to get his hands on some of Daisy's Heritage Reserve Series. "Having it come in and smelling it, that's just the coolest thing in the world. Then you think, well, what would this best be used for? Maybe it's something you use just for sticky buns, or some softer roll that flour may have been used for a long time ago, because it's naturally aromatic and more tender than flour is today."

Daisy's customers might be antsy to reach back in time, but even in what he hopes will be his lucky seventh year of waiting, Poorbaugh is realistic. "We have a mill that's 270 years old. And we've learned to be patient with the old mill." If the wheat tests poorly or gets a thumbs-down from bakers, Daisy Flour will still have plenty of wheat from other farms to mill for market — and 10 more varieties of heritage seed yet to be planted.

"You can do all the empirical testing you want," he says. "It's going to be the loaf of bread that counts."

Koenig writes the blog Words to Eat By and is the author of "Parents Need to Eat Too," coming in 2012 from Harper Paperbacks. She lives in Brooklyn.