Building Successful Microenterprises
Using Locally Grown Grains:

CASE STUDY: WIDE AWAKE BAKERY

Fall 2015

Wide Awake

A locally grown bakery

Photo: J. Russell/GrowNYC

GREENMARKET'S REGIONAL GRAINS PROJECT

GrowNYC and the Organic Growers' Research and Information-Sharing Network (OGRIN) collaborated to create research-based case studies that share best practices of regional grain producing and processing enterprises with entrepreneurs who seek to join this growing economy. This case study was made possible with funding from the United States Department of Agriculture Rural Development's Rural Microentrepreneur Assistance Program. To read additional case studies, visit grownyc.org/grains and ogrin.org.

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Photo: J. Russell/GrowNYC

A superb loaf of bread served during dinner among friends—this was the catalyst for the creation of **Wide Awake Bakery**, an artisan bakery near Mecklenberg, NY (about 15 minutes from the city of Ithaca). The bread was made by Stefan Senders, a home baker, from wheat grown at Thor Oechsner's nearby organic farm. Impressed with the bread's excellent flavor, aroma, and appearance, Thor suggested that Stefan consider opening a bakery that would feature bread made from locally grown grain.

Above The centerpiece of the bakery: a custom wood-fired white oven modeled on late 19th century Spanish ovens, with refinements such as smoke channels and a steam injector.

In Stefan's high-quality bread, Thor saw an opportunity to build another market for the wheat and other food-grade grains he was producing. In 2009, he had been a driving force in opening Farmer Ground Flour, a mill in Trumansburg, NY. The milling enterprise added value to his grains and enabled him to sell flour and other milled products directly to bakeries and other food outlets, including several Greenmarkets. Investing in the start-up of a bakery that would use Farmer Ground flour to create and sell artisan bread was a means of adding even more value to his grains.

Thor's idea fell on fertile ground. Stefan was at a point in his life where interests were converging to make the idea of opening a "locally grown" bakery not a feel-good fantasy, but a logical next step. For one, Stefan had amassed considerable expertise in the art of bread-making. He had been fascinated with baking bread since childhood. Exposure to the superb bread in Berlin, Germany where he did doctoral work in anthropology made him resolve to learn to bake similarly high-quality bread for his family. While teaching in Ann Arbor, MI, Stefan discovered Zingerman's Bakehouse. The bread there inspired him to voraciously consume books on baking and experiment with techniques and recipes to raise his bread from the level of the merely very good to the excellent.

Another commitment—to sustainable agriculture—led Stefan and his family to settle in the Ithaca area, a center of innovation in alternative agriculture and development of local food economies. While continuing to work in academia, Stefan and his wife bought 70 acres of land on which they began to raise livestock (which now includes a horse, sheep, pigs, chickens, and geese). They found themselves in a community of small businesses featuring high-quality, local foods, from small farms selling vegetables and fruit to a farm-to-table butcher shop to dairies producing cheese. With access to flour milled from locally grown grains by Farmer Ground Flour, backing from Thor Oechsner, and a passion for bread making, Stefan was well positioned to join and strengthen this local food community by baking excellent "locally grown" bread.

Photos: Rachel Lodder (left), J. Russell/GrowNYC

Above left Business partners Stefan Senders of Wide Awake Bakery (left) and Thor Oechsner of Farmer Ground Flour.
Above right The majority of flour used at Wide Awake comes from Farmer Ground Flour sacks like this one.

STARTING UP THE BAKERY

Choosing a business model

A first step in the start-up of the bakery was the development of a business model. Stefan began with a deliberately conservative estimate of productivity: He figured that the bakery could initially produce at least 350 loaves a week. (That number was drawn from the highly successful Poilâne artisan bakery in Paris, whose bakers produce 350 hand-shaped loaves a day. Stefan notes that Poilâne has been a model for many aspiring bakers in that it developed a model for high-capacity production of artisan bread.) He factored into his plan the need for the bakery's capacity to expand to 1,000 loaves a week and beyond to reach profitability, which helped in planning the bakery's size, oven type and capacity, and other needed infrastructure. He also settled on a central marketing strategy: the concept of a community-supported bakery adapted from the community-supported agriculture (CSA) model, which has been highly successful in the Ithaca area (see marketing section on page 7).

Funding the business through innovative means

Stefan had some financial backing from Thor, who is a partner in the business. To raise the remainder of the needed capital, he set up a Facebook page and began canvassing family, friends, and community members for loans. He took an iterative approach to fundraising: To avoid going into debt with contractors and suppliers, he'd fundraise, get work done on building and equipping the bakery until the money ran out, and then fundraise again for the next steps.

Once the bakery was finished, he needed capital to start production. He sent out around 50 letters to potential investors offering "angel" shares in the bakery—for a $1,000 upfront payment, each investor would receive 250 loaves of bread. Once again he was successful: 17 people invested—enough to "float us through that start-up period." Stefan notes that he also kept his "day job" for about a year into the development of the business, working on the bakery on nights and weekends. It helped that his wife was also working and continues to work full-time off the farm.

Building the bakery and the oven

In 2010 Stefan began constructing both a building (30 x 40 ft) to house the bakery and an oven at his farm. He was joined by David McInnis who helped with the construction, development of recipes and techniques, and bread baking at Wide Awake through 2013. Billy O'Brien, a local inventor and "mechanical mentor" to Stefan, was instrumental in helping to design (and re-design) the wood-fired oven and steam generation system.

Stefan chose to construct a wood-fired "white" oven, so-called because it is heated with a fire box external to the oven's baking chamber (as opposed to a "black" oven, which is heated from a fire built

Photo: J. Russell/GrowNYC

Above Baker Hope Rainbow checks bread in the oven's 8-foot diameter stone turntable.

inside the oven itself that is removed before baking). The advantage of the white oven is that it can retain a relatively stable temperature conducive for bread baking indefinitely as long as the heat source is maintained. The Wide Awake bake oven, which was built with ~10 tons of refractory concrete and fire brick, is modeled on Spanish ovens used in the late 19th century. Its baking hearth is a stone turntable (8 feet in diameter) that is suspended in the baking chamber and is turned using a hand crank. Stefan built in a number of refinements, including smoke channels inside the walls of the oven, a stone labyrinth in its ceiling that extracts and stores heat, and a steam injector in the attic above the oven.

Production and staffing

By spring 2011, the bakery opened, initially producing 350 loaves a week. As of 2015, Wide Awake is using 1,200 pounds of flour a week, the bulk of which is used to produce around 1,000 loaves of bread. The bakery also produces pasta, granola, and pastries, but its central focus has remained production of bread made with levain, or French-style sourdough starter.

Stefan estimates that about 70% of what the bakery produces is made with Farmer Ground Flour's stone-milled organic flours. The remainder is largely comprised of high-protein, roller-milled white flour from Quebec-based La Meunerie Milanaise.

To meet an increased workload, Wide Awake now employs four full-time bakers and one part-time baker. This includes several interns who are trained in both bread-making and marketing techniques. Initially funded by a USDA Rural Microentrepreneur Assistance Program (RMAP) grant, Wide Awake also offers short courses for those wanting to learn how to bake with local grains (including commercial and home bakers) and those looking to start a micro bakery.

BAKING WITH FLOUR MADE FROM LOCAL GRAINS

The re-integration of wheat and other food grains on farms in the Northeast has faced many hurdles, including slow acceptance by bakers in the region. Bread makers have been used to working with commodity flour, which is made from high protein wheat varieties (grown in the Midwest and Northern Plains) to withstand the mechanized process of modern bread-making and which is blended to strictly adhere to flour company formulations.

In contrast, bread wheat varieties grown in the Northeast tend to be somewhat lower in protein and can also fluctuate from season to season in protein content. These differences have led some bakers to characterize flour made from wheat local to the Northeast as "difficult to work with." Those at Wide Awake Bakery are part of a growing movement of bakers who have committed to using local grains and who are determined to "meet the flour halfway." They emphasize that successfully working with local flour requires a willingness to experiment and some changes in approach to the bread-making process. They have identified several maxims that can help bakers get a good start in working with local grains.

Photo: J. Russell/GrowNYC

Clockwise from top left: Stone-ground flour from Farmer Ground Flour; A vintage Italian pasta maker; A vintage German spiral mixer for larger batches of bread, which Stefan bought on Craigslist.

- **Have an open mind—and be flexible**
  The bakers at Wide Awake Bakery don't accept the premise that flour made from locally grown grains is inferior to that of commodity flour—different, yes, but certainly not inferior. Stefan emphasizes that the special qualities of bread made from locally grown and milled grains, including intense and unique flavor and a fresh taste, far outweigh any drawbacks. In terms of local flour being less consistent from batch to batch than commodity flour, David McInnis maintains that this "inconsistency" actually makes flour more interesting for the baker to work with and produces a pleasing variability in the bread. Because local grain production is still ramping up in the Northeast, they do experience flour supply shortages but deal with this by quickly changing to other breads for which they can source flour. Their small size and the close connection maintained with their breadshare members (see marketing section on page 7) allow them this flexibility.

- **Use best baking practices**
  When asked for the secret to working with flour made with local grains, Stefan is adamant that there is no secret. The foundation for success is the same as that for working with any flour—that is, identify and implement best baking practices. Stefan summarizes these practices as "accurate scaling and division, proper hydration and mixing, full fermentation, gentle but persuasive shaping, considered scoring, a full bake at appropriate temperature and moisture level, and adequate cooling."

- **Give the flour "what it wants"**
  Implicit in Stefan's description above is the idea that each local flour, because it is made from grain(s) grown in a specific year on a specific farm or farms, will require its own version of these best practices. Stefan struggled with this concept initially, but credits a major breakthrough to a conversation he had with Thom Leonard, a master baker experienced in working with local grains, who counseled him not to "fight" with the

flour, but "give it a kiss." As a result, both Stefan and David talk of "listening to the flour" through touching and experimenting with it and thus learning to give it what "it wants." In working with a high-extraction flour produced by Farmer Ground Flour, for example, they've learned that the flour must be treated differently from commodity flour: it requires more hydration, a gentler mix, a longer autolyse (rest period in the mixing phase), a very gentle pre-shaping and shaping, and a longer proofing time at cooler temperatures. In general, they have found that use of a levain rather than a commercial yeast adds to the strength of flour made from locally grown grain and that locally grown flour ferments more quickly and vigorously than commodity flour, thus requiring less leavening agent and no need for added sugar. They have also found that either freshly ground flour or flour aged over a month is relatively easy to work with and makes excellent bread. Flour stored for a short period of time—say 10 days to a month—will be much more difficult to work with and should be further aged before use.

- **Use appropriate equipment**
  The bakers at Wide Awake have experimented with various mixers to identify those suitable for use with local flours. They have found the Hobart mixer, an industry standard, to be too fast and rough for these flours. A small Italian fork mixer, however, rotates slowly (it actually kneads rather than mixes) and provides the flour with an appropriately gentle mix. For larger batches of bread, they use a German spiral mixer, what Stefan refers to as the "Rolls Royce" of German mixers, which, although faster than the fork mixer, still provides a gentle mix of the dough.

- **Try a gradual approach**
  Stefan suggests that a good way to begin working with locally grown flour is to start slowly: include a small percentage of local flour in a standard recipe, see how that affects dough performance, and begin to modify your practices accordingly. He particularly recommends this approach when using whole grain flour, whose high bran content can significantly reduce loaf volume.

Below left Spelt bread cools at Wide Awake.
Below right Whole wheat pasta shells are a relatively new product line from Wide Awake Bakery.

Photos: J. Russell/GrowNYC

Right Proofing baskets stacked above a board showing the dough-folding schedule.

Photo: J. Russell/GrowNYC

MARKETING: A COMMUNITY-SUPPORTED BAKERY

Stefan emphasizes that starting a small bakery or food enterprise is a risky business—"margins are tight." An additional risk when working with locally grown flours is that they are "clean label," i.e., they do not contain additives that extend shelf life. This is a selling point with many consumers, but it also means that the danger of stale (unsalable) bread is also increased.

To reduce risk, Wide Awake Bakery decided to use a marketing approach similar to community-supported agriculture (CSA). The bakery established multi-week breadshare cycles that often ran concurrently with local CSA farm cycles. Members signed up for a breadshare and made a lump sum payment that entitled them to a loaf a week for that cycle. As with many CSAs, members of the breadshare had a choice of multiple pickup times and locations. Through use of the breadshare and its prepayment mechanism, Wide Awake Bakery's risk of not selling the loaves it produced was reduced to zero.

Wide Awake has since modified its breadshare to increase flexibility for members and its production schedule. Its "Crust Fund" is set up using Farmigo software. Any time of year consumers can sign up online with an initial down payment to receive a weekly loaf or loaves. As their account runs low, they are sent a reminder to replenish it.

Stefan notes that the breadshare marketing approach was easy to implement in the Ithaca area, where for years consumers have been educated about the benefits of the CSA model for supporting local growers, the local economy, and a more sustainable agriculture. This education is instrumental in inducing consumers to make an upfront payment, take responsibility for remembering the distribution place and time, and pick up the bread themselves. Wide Awake currently has around 530 members participating in its breadshare program.

While Stefan considers the breadshare Wide Awake's core market, it also sells at farmers markets, and its products are featured at restaurants and retail stores in the area. A new marketing venture involves catering at weddings. The website for the bakery (wideawakebakery.com) and a Facebook page help to both recruit new customers and keep connected with breadshare members through introducing new options for payment or sourcing bread, postings of upcoming events, and lively blogging by Stefan.

Right Stefan Senders with a group of baking students.

Photo: J. Russell/GrowNYC

FUTURE GOALS

New ventures seem the norm at Wide Awake Bakery. Planning for production of wood-fired oven pizza is underway, and Stefan is assessing the potential for a related business that would build relatively low-cost Spanish-style ovens.

KEY FACTORS IN THE ENTERPRISE'S SUCCESS

It is worth emphasizing several aspects of Wide Awake Bakery's development that seem to have been especially critical in its success:

- **Formal and informal partnerships**: The partnership forged with grower Thor Oechsner and the Farmer Ground Flour mill provided needed capital for the bakery's establishment and a reliable nearby source of locally grown flour. Both Thor and miller Greg Mol say that the partnership has been mutually beneficial: The bakery is an assured market for their flour, serves as a testing service for new flour products, and is proof positive that their flour can make really good bread. Stefan also emphasizes that Wide Awake has reached out to nurture relationships and partnerships with other local food enterprises. He notes that the products these enterprises sell—charcuterie, cheese, fruit—complement rather than compete with each other, and that these local food enterprises can help each other with advertising, equipment sourcing, and marketing and distribution.

- **Community-based funding:** No bank loans were used to capitalize the start-up of Wide Awake Bakery. Instead, Stefan used a crowd-sourcing approach—developing a well-thought out concept and plan for the bakery, publicizing this to his network of friends and neighbors in the community as well as over the internet, offering supplies of bread as an incentive, and subsequently attracting many "small-scale" investors.

- **Use of local resources and low-cost options to build the bakery and source equipment**: Stefan lowered start-up costs by building the bakery and oven himself with help from David McInnis, Billy

Photos: J. Russell/GrowNYC

Above left The external fire box that fuels the wood-burning oven at Wide Awake Bakery.
Above right Piles of wood fill a storage shed plus additional space outdoors, as ample fuel must be stockpiled for the oven.

O'Brien, and other members of the local community. Stefan noted that it would have been impossible to buy new bakery equipment from industry suppliers—the cost would have approached $500,000. Instead he sourced used equipment where possible. For example, the Italian fork mixer was obtained from a friend who sells used restaurant equipment. However, buying used equipment, he cautions, will often entail repair or refitting. While the Italian mixer, which dates from the 1960s, was in great working order, the German spiral mixer bought from Craigslist had to be rewired a couple of times before it worked properly.

- **Extensive and continuing education in baking**: Stefan notes that there is a steep learning curve when shifting from home to commercial baking and from use of commodity to local flour. As he worked to start up the bakery, Stefan augmented his years of home-baking experience by reading voraciously on the science and art of baking, taking a bread-making class at King Arthur's Flour in Norwich, VT, attending the Kneading Conference in Skowhegan, ME, and by reaching out to expert bakers for advice.

- **Consumer base for breadshare already developed:** The location of the bakery near Ithaca, NY, meant that consumers were already well-educated about and highly supportive of community-supported agriculture and were therefore predisposed to support the breadshare concept. Stefan notes that in many locations in the country significant education will be needed for a critical mass of consumers to actively participate in a community-supported-bakery enterprise.

Right Dave McInnis inspecting a loaf as it comes out of the oven.

ADVICE ON STARTING UP A MICRO BAKERY SPECIALIZING IN LOCAL GRAINS

- **Have a clear vision**
  To those who are thinking of starting up an artisan bakery, Stefan emphasizes how important it is to have a clear vision of what you want to do: "What kind of bread do you want to make, how big do you want to be, how much money do you need to make?" Thinking through these questions will help to determine the size and type of oven and other infrastructure that will be needed and, very importantly, the size of the market needed to sustain and grow the enterprise.

- **Realistically assess your expectations and goals**
  Of his experience in developing Wide Awake Bakery, Stefan has written:

  "We have a good life… full of good work, good people, challenging problems, lots of laughter, and we eat well and plenty, raise our children, enjoy a few evenings on the porch... Best life I've ever had. But money? Wouldn't say that."

  While Wide Awake Bakery has developed into a viable, growing enterprise, Stefan makes clear that a micro-scale bakery that puts a premium on serving its local community is not likely to accumulate massive profits. But it may be a good option for those with a passion for baking and a commitment to sustainable food systems.

- **Develop your business as part of the local community**
  Finally, Stefan emphasizes the need to forge connections in the community during the planning stages of the bakery and beyond. Of central importance is developing strong relationships with local growers and mills, not only to access high-quality grain or flour, but to better understand what farmers and millers do, the risks they face, and the returns they require. But Stefan also maintains that local folk comprise a deep reservoir of creativity and good will. Getting to know and partnering with local community members, not just other food producers and sellers, but also such people as contractors, mechanics, and appliance store owners, is key to developing innovative methods of producing, marketing, and distributing products—not to mention helping to build and maintain a sustainable and enjoyable community in which to work and live.

Wide Awake

Facts and Figures

Photo: J. Russell/GrowNYC

Products
- **European-style hearth breads**
- **Pasta**
- **Granola**
- **Pastries**

Prices
Range from $5.50 per loaf for breadshare members to $6.85 retail

Production Volume
2014: Approx. 1,000 loaves of bread per week, using 1,200 lbs of flour weekly, or 62,400 lbs annually.

Net Sales
- **2013:** $65,000
- **2014:** $140,000

Buildings
Main bakery is a 30 x 40 ft. building; $10,500 annual rent
Includes:
- Office, 6 x 10 ft.
- Pastry room, 6 x 12 ft.
- Walk-in cooler, 15 x 15 ft.
- Shed for storing wood plus additional space to store wood

Utilities
- **Electric:** $2,000/yr
- **Wood:** $1,000/yr for 7 cords

Staff
- 4 full-time
- 1 part-time
- Several delivery drivers

Licenses
New York State Department of Agriculture and Markets Food Processing Establishment License – Article 20-C

Start-up Costs
- Total approx. $175,000
- Sharply reduced because Stefan and his partners did much of the design, engineering and building themselves
- Steep upfront costs: New building, septic system, well
- Custom wood oven built by Stefan and friends: approx. $35,000. (Would have been nearly double had he hired outside help.)

Start-up Funding
- $80,000 Two individual donors
- $20,000 Partner
- $17,000 Online crowd-sourcing: donations in exchange for breadshares

Insurance
2014: $5,000

Equipment
- Custom-made, wood-fired white oven, heated with an external firebox, with an 8-foot diameter stone turntable in the baking hearth. Modeled on late 19th century Spanish ovens, with refinements such as smoke channels and steam injector.
- Small, used Italian fork mixer from the 1960, bought from a friend.
- Used German spiral mixer for larger batches of bread, bought from Craigslist.
- Small sheeter for pastries
- 8-pan convection oven
- 8-pan proofer
- Stand-up refrigerator
- Extrusion pasta machine
- Antique Italian pasta maker
- Miscellaneous equipment: benches (wooden counters), racks, baskets, 3-bin sink, drying racks
- Vehicles for deliveries

Markets Accessed
- The Crust Fund, an online community breadshare that charges members $5.50 per loaf, managed by Farmigo.
- 350-400 loaves per week
- 530 members as of 2015
- Breadshare plus members' additional retail purchases represent 70% of business
- Direct marketing at regional farmers' markets
- Wholesale to restaurants and stores
- Baking classes: 4 per year

GREENMARKET'S REGIONAL GRAINS PROJECT

GrowNYC is a hands-on environmental nonprofit whose goal is to help you make New York City the most sustainable and livable city in the world. More gardens, greenmarkets, more recycling, and education for all.

A GrowNYC initiative, the Greenmarket Regional Grains Project fosters a thriving regional grain economy within the local food system, beginning with our network of growers and customers and extending to any farmer, entrepreneur or retailer contributing to its growth throughout the Northeast.

Visit **grownyc.org/grains** to learn more.

The Organic Growers' Research and Information-Sharing Network (OGRIN) generates practical information for organic farmers and gardeners through farmer participatory research, review articles and fact sheets on issues critical to organic farming, and by providing forums for information-exchange between growers.

Visit **ogrin.org** to learn more.

Committed to the future of rural communities.

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